

**FINAL  
ENVIRONMENTAL ASSESSMENT  
FOR CAPITAL IMPROVEMENTS PROGRAM (CIP)**

**DAVIS-MONTHAN AIR FORCE BASE  
TUCSON, ARIZONA**



**United States Air Force  
355<sup>th</sup> Fighter Wing**

**June 2008**

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## ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit	DOL	United States Department of Labor
µg/m <sup>3</sup>	micrograms per cubic meter	DRMO	Defense Reutilization Marketing Office
355 FW	355th Fighter Wing	EA	Environmental Assessment
357 FS	357th Fighter Squadron	ECG	Electronic Combat Group
358 FS	358th Fighter Squadron	EIAP	Environmental Impact Analysis Process
55 ECG	55th Electronic Combat Group	EIS	Environmental Impact Statement
AAM	Annual Arithmetic Mean	EO	Executive Order
AAQS	Ambient Air Quality Standards	EOD	Explosive Ordnance Disposal
ACC	Air Combat Command	ERP	Environmental Restoration Program
ACHP	Advisory Council on Historic Preservation	ESA	Endangered Species Act
ACM	Asbestos-containing material	FAA	Federal Aviation Administration
ADEQ	Arizona Department of Environmental Quality	FEMA	Federal Emergency Management Agency
ADWR	Arizona Department of Water Resources	FICUN	Federal Interagency Committee on Urban Noise
AFB	Air Force Base	FONSI	Finding of No Significant Impact
AFI	Air Force Instruction	GPM	gallons per minute
AFM	Air Force Manual	HVAC	Heating, Ventilation, and Air Conditioning
AGE	Aerospace Ground Equipment	I-10	Interstate 10
AIRFA	American Indian Religious Freedom Act	I-19	Interstate 19
AMARG	Aerospace Maintenance and Regeneration Group	ICRMP	Integrated Cultural Resources Management Plan
ANG	Air National Guard	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
ANSI	American National Standards Institute	IRA	Interim Response Action
AOC	Area of Concern	JEIM	Jet Engine Intermediary Maintenance
APZ	Accident Potential Zone	kV	kilovolt
AQCR	Air Quality Control Region	LBP	lead-based paint
AST	Aboveground Storage Tank	MCF	million cubic feet
AT/FP	Anti-Terrorism/Force Protection	MGD	million gallons per day
AZGF	Arizona Department of Game and Fish	MSA	Metropolitan Statistical Area
AZPDES	Arizona Pollutant Discharge Elimination System	MSGP	Multi-sector General Permit
BRAC	Base Realignment and Closure	MSL	mean sea level
BMP	Best Management Practice	NAAQS	National Ambient Air Quality Standards
CAA	Clean Air Act	NEAP	Natural Events Action Plan
CATM	Combat Arms Training Maintenance	NEI	National Emissions Inventory
CEQ	Council on Environmental Quality	NEPA	National Environmental Policy Act
CEQA	California Environmental Quality Act	NESHAP	National Emission Standards for Hazardous Air Pollutants
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NHPA	National Historic Preservation Act
CES/CEVR	Civil Engineering Squadron/Environmental Restoration Element	NO <sub>2</sub>	nitrogen dioxide
CES/CEVA	Civil Engineering Squadron/Environmental Analysis Element	NOI	Notice of Intent
CFR	Code of Federal Regulations	NO <sub>x</sub>	nitrogen oxides
cfs	cubic feet per second	NPDES	National Pollutant Discharge Elimination System
CIP	Capital Improvements Program	NRCS	Natural Resources Conservation Service
CO	carbon monoxide	NRHP	National Register of Historic Places
CSAR	Combat Search and Rescue	O <sub>3</sub>	ozone
CWA	Clean Water Act	Pb	lead
CZ	Clear Zone	PCI	per capita income
dB	decibel	PM <sub>10</sub>	particulate matter less than or equal to 10 micrometers in diameter
dBA	A-weighted decibel	PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 micrometers in diameter
DDESB	Defense Department Explosives Safety Board	ppm	parts per million
DNL	Day-Night Average Sound Level	PSD	Prevention of Significant Deterioration
DoD	Department of Defense	QD	quantity-distance

CONTINUED ON INSIDE BACK COVER

## **Capital Improvements Program Environmental Assessment**

Finding of No Significant Impact

### **NAME OF THE PROPOSED ACTION**

Environmental Assessment (EA) for Capital Improvements Program (CIP) for Davis-Monthan Air Force Base (AFB), Tucson, Arizona.

### **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

The United States Air Force (Air Force) will implement the CIP for Davis-Monthan AFB, in Tucson, Arizona. The CIP is a plan designed to identify construction and demolition projects proposed for improving the physical infrastructure and functionality of Davis-Monthan AFB. The 355th Fighter Wing (355 FW) will implement construction projects associated with their CIP that would include construction and/or modification of 10 new facilities, development of new pavements, and demolition of six facilities that are either deteriorated, obsolete, and/or in the footprint of proposed new construction.

### **SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

*Earth Resources.* Under the proposal, 6.2 acres of surface disturbance will occur over the course of the five-year construction program associated with the CIP. The grading of existing soil and placement of structural fill for new facilities will not substantially alter existing soil conditions at the Base, because to a large extent, the proposed activities are planned in areas where surface disturbance has previously occurred. Best Management Practices (BMPs) will be used to limit soil movement, stabilize runoff, and control sedimentation. Impacts to earth resources will not be significant.

*Water Resources.* With implementation of the CIP, there will be a net decrease of 0.5 acres of impervious surface at Davis-Monthan AFB. The Base will update their Storm Water Pollution Prevention Plan (SWPPP) to include these projects and has obtained or will obtain, as appropriate, coverage under Construction General Permit AZG2003-001 for storm water. Adherence to the requirements of the permit will include implementation of BMPs to minimize the potential for exposed soils or other contaminants from construction activities to reach nearby surface waters. Impacts to water resources will not be significant.

*Biological Resources.* In general, the proposed projects are at sites that are highly altered by man. There are no sensitive plant species known to occur on Base, and animal species that would be found in specific project areas are well-adapted to the human environment. The Base will coordinate with appropriate state and federal agencies regarding western burrowing owls, cave myotis, peregrine falcon, lesser long-noised bat, and Pima pineapple cactus, should there be a need. Additionally, the Base will comply with the Arizona Native Plant Law regarding all sensitive native plants. Prior to construction and/or demolition activities, a qualified field biologist will survey the sites to determine whether sensitive species are present. Impacts to biological resources will not be significant.

*Air Quality.* In general, combustive and fugitive dust emissions from proposed CIP construction activities will produce localized, elevated air pollutant concentrations, that will occur for a short duration and which will not result in any long-term impacts on the air quality of Pima County (Air Quality Control Region [AQCR] 015). Prior to construction and/or demolition activities, an

activity permit will be obtained from Pima County, Department of Environmental Quality. Impacts to air quality in the County will not be significant.

*Noise.* Construction noise emanating off-site as a result of the proposed projects will probably be noticeable in the immediate site vicinity, but is not be expected to create adverse impacts. The acoustic environment on and near Davis-Monthan AFB is expected to remain relatively unchanged from existing conditions. Impacts from noise will not be significant.

*Land Use/Visual Resources.* The proposed construction projects associated with the CIP are expected to enhance Base planning and compatibility of functions on Base. Some existing incompatibilities will be corrected. Land use off-base is not expected to be impacted. Visual resources are generally not expected to be impacted. Impacts to land use and visual resources will not be significant.

*Socioeconomics/Environmental Justice.* There are no long-term changes in Base population and/or employment as a result of implementation of the CIP. Additionally, these projects are not expected to create adverse environmental or health effects and therefore no disproportionately high or adverse impacts to minority, low-income, or youth populations are expected. Impacts to socioeconomics and environmental justice will not be significant.

*Cultural Resources.* Activities associated with the CIP are not expected to impact archaeological or traditional resources. All facility demolitions and modifications have been coordinated with the Base Cultural Resource Manager and the State Historic Preservation Office (SHPO), which have been determined to be ineligible for inclusion in the National Register of Historic Places (NRHP). Impacts to traditional cultural resources are not expected. Impacts to cultural resources will not be significant.

*Safety.* Implementation of the proposed projects does involve ground activities that may expose workers performing the required site preparation, grading, and building construction to some risk. Strict adherence to all applicable occupational safety requirements will minimize the relatively low risk associated with these construction activities. All projects have been sited outside any quantity-distance (QD) arcs, as appropriate. Additionally, the proposed projects will include measures to enhance and correct anti-terrorism/force protection (AT/FP) shortfalls as part of the facility designs. Impacts to safety will not be significant.

*Hazardous Materials and Waste Management.* The proposed projects associated with the CIP will generate construction and demolition waste that will be recycled and/or taken to the local landfill, as appropriate. There are no capacity issues with the existing landfills. Hazardous materials and wastes will be handled, stored, and disposed of in accordance with applicable regulations. Any asbestos containing material (ACM), lead-based paint, or contaminated soils associated with facility demolitions, will be removed and disposed of per applicable regulations. Any contaminated soil encountered during construction activities would be tested and disposed of in accordance with appropriate Arizona Department of Environmental Quality (ADEQ) regulations. A waiver for construction near any Environmental Restoration Program (ERP) sites will be acquired prior to construction activities. Impacts to hazardous materials and waste management will not be significant.

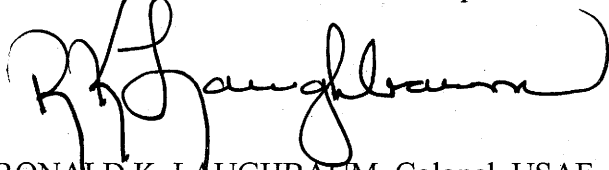
*Infrastructure.* The proposed projects associated with the CIP will result in some temporary interruption of utility services and minor hindrance of transportation and circulation during construction activities. These impacts will be temporary, occurring only for the duration of the construction period. In general, infrastructure at Davis-Monthan AFB will improve under these actions, as there will be some upgrades to existing and extensions to non-existent utilities. Impacts to infrastructure will not be significant.

#### **NO-ACTION ALTERNATIVE**

Under the No Action Alternative, the CIP would not be implemented. None of its associated construction and demolition would occur. Conditions would remain unchanged from the current baseline situation.

#### **CONCLUSION**

Based on the findings of this EA conducted in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] §§ 1500-1508), and 32 CFR 989, et seq., *Environmental Impact Analysis Process* (formerly known as Air Force Instruction [AFI] 32-7061), and after careful review of the potential impacts, I conclude implementation of the Proposed Action would not result in significant impacts to the quality of the human or the natural environment. Therefore, a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required for this action.

  
RONALD K. LAUGHBAUM, Colonel, USAF  
Commander, 355th Fighter Wing

**JUN 03 2008**

Date



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## **1.0 PURPOSE AND NEED FOR ACTION**

### **1.1 INTRODUCTION**

The 355<sup>th</sup> Fighter Wing (355 FW) is located at Davis-Monthan Air Force Base (AFB) in Tucson, Arizona. The 355 FW is the host unit at Davis-Monthan AFB providing medical, logistical, and operational support to all Davis-Monthan AFB units and is composed of four Groups: the 355<sup>th</sup> Operations Group, the 355<sup>th</sup> Maintenance Group, the 355<sup>th</sup> Medical Group, and the 355<sup>th</sup> Mission Support Group. The mission of the 355 FW is to deliver decisive airpower and combat support to ground forces worldwide.

The 355 FW proposes to implement construction projects associated with their installation General Plan (2006) that would include construction of several new facilities and modifications to some existing facilities, including:

- Construction of an A-10 Training System Support Center (TSSC) Storage Facility
- Addition/ Alteration to the existing A-10 TSSC Facility
- Construction of an addition to Combat Search and Rescue (CSAR) Aerospace Ground Equipment (AGE) Storage Facility, Building 4721
- Repairs (Closure) of Six Base Water Wells
- Construction of a Parking Lot at the Base Theater
- Construction of an Addition to 357<sup>th</sup> Fighter Squadron (357 FS) Squadron Operations Facility, Building 5247
- Construction of a C-130 Jet Engine Intermediary Maintenance (JEIM) Facility
- Construction of an A-10 JEIM Facility
- Construction of an Addition to the 358<sup>th</sup> Fighter Squadron (358 FS) Squadron Operations Facility, Building 5600
- Construction of a Type III Hydrant Fueling System
- Demolition of a Dormitory Facility, Building 4220
- Demolition of the Dormitory Central Exchange Administration Facility, Building 4320

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] §§ 1500-1508), and 32 CFR Part 989, et seq., Environmental Impact Analysis Process (formerly



known as Air Force Instruction [AFI] 32-7061), the 355 FW has prepared this Environmental Assessment (EA) that considers the potential consequences to the human and natural environment that may result from implementation of these projects or their alternatives.

## 1.2 BACKGROUND

Davis-Monthan AFB borders the southeastern edge of the City of Tucson in Pima County, Arizona and falls within the city limits of Tucson (Figures 1.2-1 and 1.2-2). The Base occupies approximately 10,700 acres of federally owned land, of which 5,700 acres are developed or semi-improved, 4,700 acres are undeveloped, and 300 acres are under easement to and maintained by Pima County.

The 355 FW missions are to train A-10 and OA-10 pilots and to provide A-10 and OA-10 close support and forward air control to ground forces worldwide. In addition, the 355 FW is also tasked to provide command, control, and communications countermeasures in support of tactical forces with its EC-130H aircraft and, employing the EC-130E aircraft, provide airborne command, control, and communications capabilities for managing tactical air operations worldwide.

In addition to the 355 FW, nearly every major air command, the Air Force Reserve, and the Air National Guard (ANG) are represented at Davis-Monthan AFB. Major associate units at Davis-Monthan AFB include Headquarters 12<sup>th</sup> Air Force, 55<sup>th</sup> Electronic Combat Group (55 ECG), the 563<sup>rd</sup> Rescue Group, the Aerospace Maintenance and Regeneration Group (AMARG), and several other units and agencies such as the United States (U.S.) Customs and Border Protection. The 12<sup>th</sup> Air Force is charged with commanding, administering, and supervising tactical air forces west of the Mississippi River and operates combat-ready forces and equipment for air superiority. The 55 ECG provides combat-ready EC-130H Compass Call aircraft, crews, maintenance, and operational support to combatant commanders. The group also plans and executes information operations, including information warfare and electronic attack, in support of their mission. The 563<sup>rd</sup> Rescue Group directs flying operations for the United States Air Force's (USAF) only active duty rescue wing dedicated to CSAR. The group is responsible for training, readiness, and maintenance of one HC-130 squadron and two HH-60 squadrons, two pararescue squadrons, two maintenance squadrons, and an operations support squadron.

AMARG is responsible for more than 5,000 aircraft stored at Davis-Monthan AFB. An Air Force Materiel Command unit, AMARG is responsible for the storage of excess Department of Defense (DoD) and Coast Guard aircraft. The center in-processes approximately 400 aircraft annually for storage and out-processes approximately the same number for return to the active service, either as remotely controlled drones or sold to allied forces.

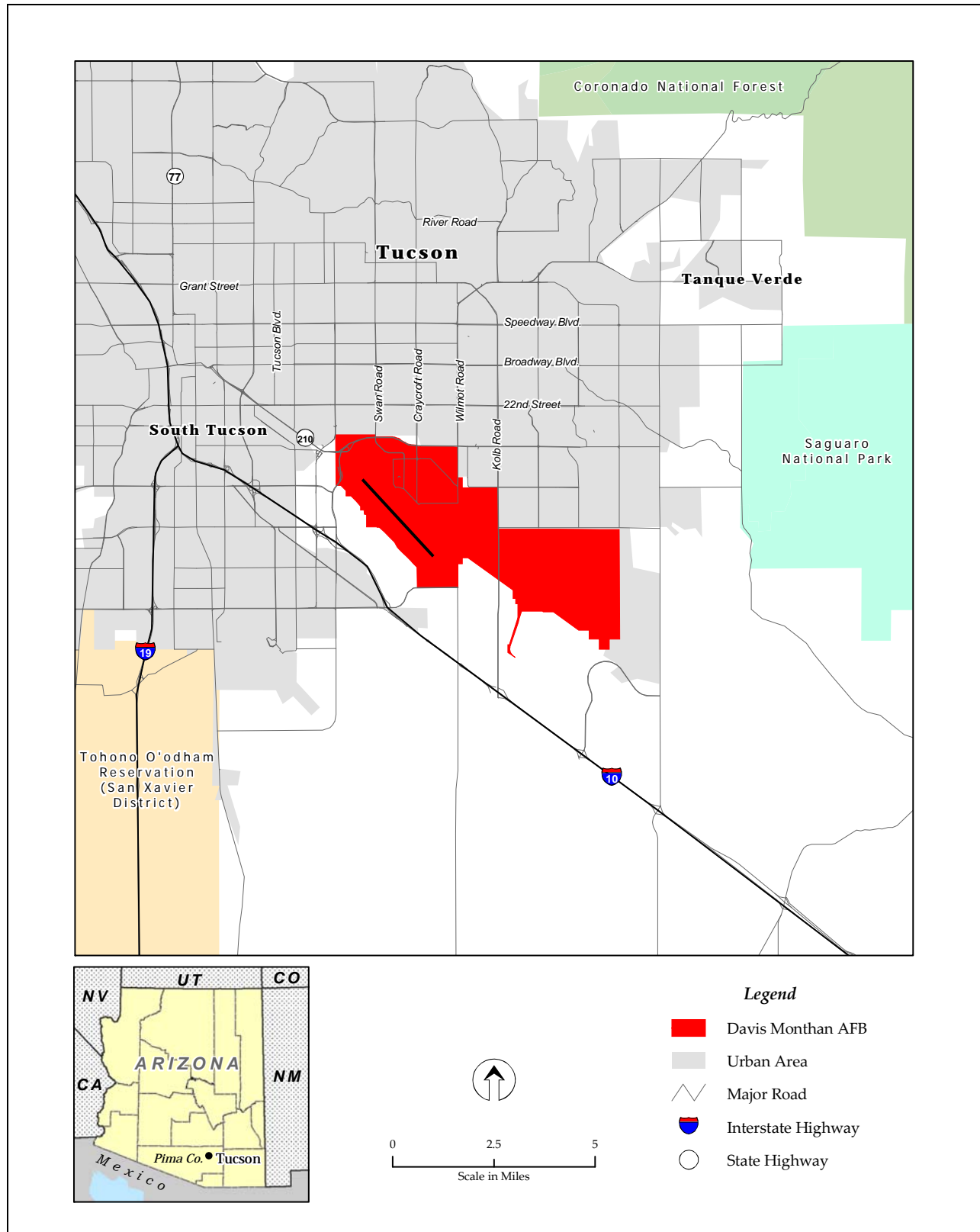
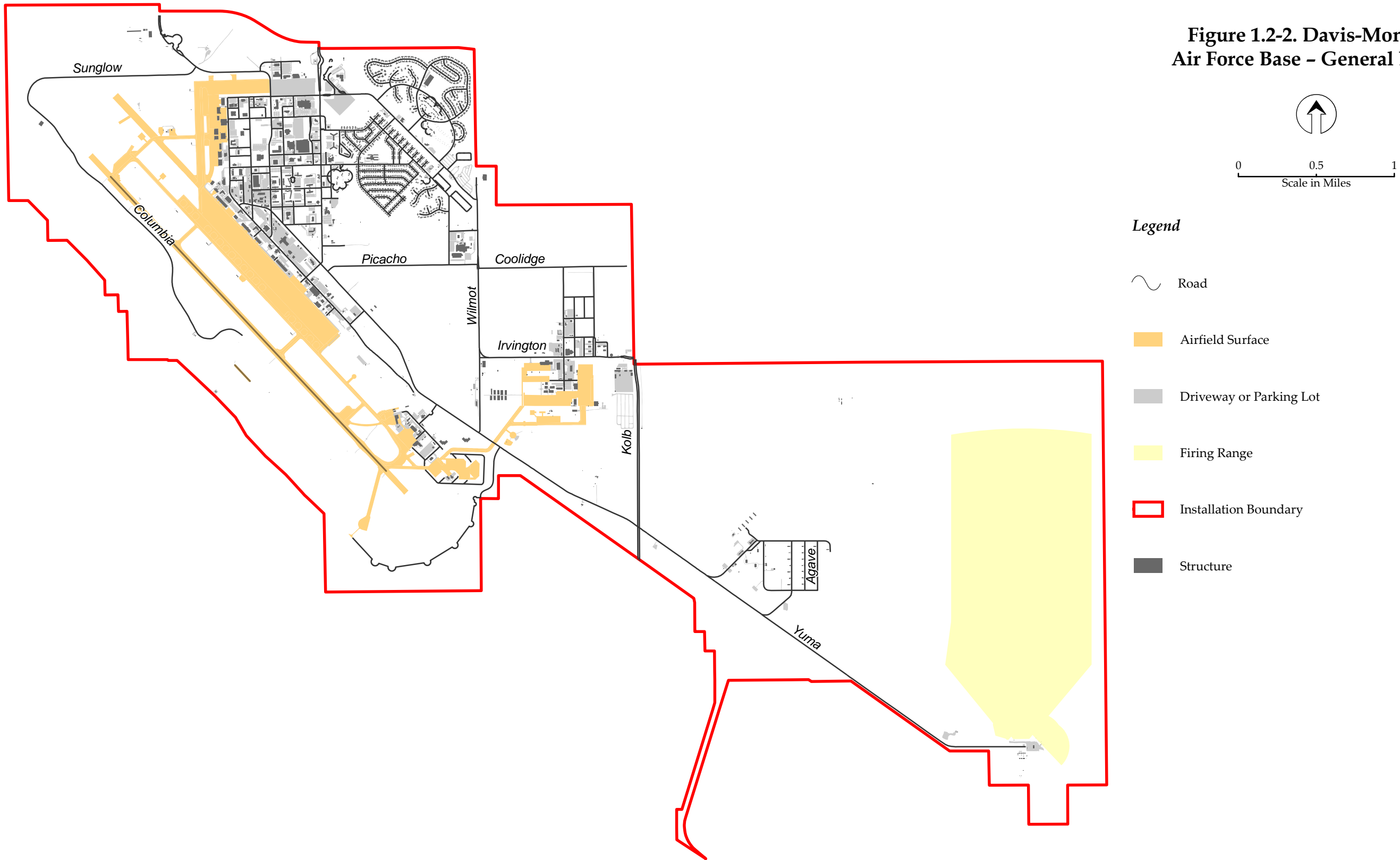


Figure 1.2-1. Regional Location of Davis-Monthan Air Force Base, Tucson, Arizona

### **1.3 PURPOSE AND NEED**

The purpose of the Proposed Action is to provide Davis-Monthan AFB infrastructure improvements that have been deemed necessary to continue to fully support and implement their mission. Davis-Monthan AFB needs to maintain, revitalize, and expand facilities in support of the current and projected Davis-Monthan AFB missions, which play a predominant role in protecting and preserving the national interests of the United States of America. The Proposed Action is needed to replace outdated facilities and to accommodate the continuously evolving missions assigned to Davis-Monthan AFB. Many of the existing facilities are outdated and no longer support current mission requirements adequately. In other instances, necessary facilities are simply absent and must be provided per Air Force Handbook 32-1084, *Facility Requirements*. Table 1.3-1 identifies the proposed construction projects and provides a brief description of each.



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**Table 1.3-1. Description of Proposed Construction Projects  
for the Davis-Monthan Capital Improvements Program (CIP)  
(Page 1 of 3)**

<i>Number</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Description/Need</i>
1	FBNV079004	Construct A-10 Training System Support Center (TSSC) Storage Facility	Under this project, a 4,000 square foot (SF) A-10 TSSC Storage Facility would be constructed. Currently, the TSSC operates in Mesa, Arizona but has been determined through Base Realignment and Closure (BRAC) that the operation be relocated to Davis-Monthan AFB, Arizona. As Davis-Monthan does not currently have available TSSC storage facilities on Base, a facility must be built or the TSSC mission will not have adequate or suitable space to continue to perform their mission.
2	FBNV079000	Addition/Alteration to A-10 TSSC Facility, Building 3426	Under this project, an alteration to Building 3426 would occur as well as a 2,500 SF addition to the facility. As a result of the BRAC mandated TSSC move from Mesa, Arizona to Davis-Monthan, an adequate TSSC facility is needed to facilitate the design, assemble prototypes, test, and produce A-10 flight simulators to accommodate the TSSC mission.
3	FBNV040042	Construct Addition to CSAR AGE Storage, Building 4721	Under this project, 2,700 SF would be added to the CSAR AGE storage facility (Building 4721) to accommodate projected growth and provide a workable environment with adequate space for increased personnel and equipment. Building 4815, in the footprint of the addition, would be demolished under this project.
4	FBNV070010	Repair (Close) Six Base Water Wells	Under this project, six Base water wells would be closed (capped off) to prevent possible contamination to underground water sources and aquifers. The following Base wells would be closed: 5, 6, 7, 8, 12, and 13.
5	FBNV040134	Construct Parking Lot at the Base Theater	Approximately 90,000 SF of new and reconfigured existing asphalt pavements, concrete curb and gutter, concrete sidewalks, site security elements, and native landscaping would be constructed to the south of Building 4153 to meet Anti-Terrorism/Force Protection (AT/FP) requirements. The current condition does not satisfy AT/FP or Unified Facilities Criteria (UFC) 4-101-01 requirements.

**Table 1.3-1. Description of Proposed Construction Projects  
for the Davis-Monthan Capital Improvements Program (CIP)  
(Page 2 of 3)**

<i>Number</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Description/Need</i>
6	FBNV060062A	Construct Addition to 357 FS Squadron Operations, Building 5247	Approximately 2,000 SF would be added to the southeastern portion of the existing 357 FS Squadron Operations facility (Building 5247) to provide adequate space for operational requirements and organizational structure needed to support the A-10 Aircraft at Davis-Monthan AFB.
7	FBNV060073	Construct a C-130 JEIM Facility	Under this project, a 1,000 SF C-130 JEIM facility would be constructed between Buildings 1237 and 1226 to provide a properly sized and configured facility for maintenance of jet engines and components. Building 133, the existing storage structure, would be demolished as the facility is outdated and deteriorated.
8	FBNV060074	Construct an A-10 JEIM Facility	A 2,500 SF A-10 JEIM facility would be constructed between Buildings 1237 and 1226 to provide a properly sized and configured facility for maintenance of jet engines and components. Building 133 would be demolished due to substandard conditions.
9	FBNV060076A	Construct Addition to 358 FS Squadron Operations, Building 5600	Approximately 2,000 SF would be added to the southeastern portion of the existing 358 FS Squadron Operations facility (Building 5600) to provide adequate space for operational and training requirements and organizational structure needed to support the A-10 Aircraft at Davis-Monthan AFB.
10	FBNV083007	Construct Type III Hydrant Fueling System	A JP-8 type III hydrant refueling system and a new fuels management facility would be constructed serving nine aircraft parking positions to quickly refuel cargo and other wide-body aircraft in support of deployments and contingency operations. The current facility was built in the 1950s and is inadequate to support current aircraft as well as projected growth. Existing pump houses violate airfield obstruction criteria (UFC 3-260-01).
11	FBNV070052	Demolition of Dormitory, Building 4220	The 24,600 SF Dormitory Facility (Building 4220) would be demolished as there is currently an excess of enlisted dormitory space on Base.

**Table 1.3-1. Description of Proposed Construction Projects  
for the Davis-Monthan Capital Improvements Program (CIP)  
(Page 3 of 3)**

<i>Number</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Description/Need</i>
12	FBNV070057	Demolition of Dormitory Exchange Administration Facility, Building 4320	The 24,600 SF Dormitory Exchange Administration Facility (Building 4320) would be demolished as the facility was built in 1968 and its condition has been identified as being beyond repair. Air Staff guidance requires all old and energy inefficient facilities be demolished; Building 4320 is currently out of compliance with the dormitory plan and Air Staff guidance.



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## **2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

### **2.1 PROPOSED ACTION (PREFERRED ALTERNATIVE)**

Davis-Monthan AFB currently maintains 604 facilities. Existing facilities and infrastructure generally meet existing mission requirements although specific facilities and supporting infrastructure are outdated and in need of replacement. Many of these facilities do not adequately support current and future mission requirements, are not adequately sized, or were constructed in the 1950s and are no longer able to support current mission requirements adequately. The Proposed Action includes the implementation of improvements that would include construction, renovation, and demolition projects that would accommodate the continuously evolving mission of the 355 FW and their tenants. These projects are described in more detail in Section 2.2. Table 2.1-1 identifies the list of projects and describes the areal extent of each project. Figure 2.1-1 identifies the proposed location for each specific project, as determined through the planning process.

In addition to the described construction activities, several facilities are proposed for demolition. Many of the existing facilities proposed for demolition were constructed prior to 1980 and are now more than 25 years old and no longer support current mission requirements adequately. Some of these older facilities are rated as Condition Code 3 facilities. A facility Condition Code is a code that describes the physical capability of a facility to accommodate the currently approved activity or function within it. There are six USAF condition codes, as described in Table 2.1-2 (Air Force Institute of Technology n.d.). Facilities that are proposed for demolition are identified in Table 2.1-3. These structures are either obsolete or deteriorated or would be in the footprint of proposed construction activities (Figure 2.1-2).

As a result of the Proposed Action, there would be approximately 35,153 SF (0.80 acres) of net new building footprint; 90,000 SF (2.0 acres) of net new pavements; and 145,797 SF (3.3 acres) of total demolition for a net decrease of -20,644 SF (0.5 acres) of impervious surface.

**Table 2.1-1. Proposed Davis-Monthan Project Details  
(Page 1 of 2)**

<i>Number</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Areal Extent/Disturbance</i>	<i>Project Details</i>
1	FBNV079004	Construct A-10 Training System Support Center (TSSC) Storage Facility	Building: 4,000 SF Pavements: none Demo: none	A 4,000 SF storage facility would be constructed including an environmentally controlled system capable of protecting the temperature and moisture sensitive electronic equipment. Construction would include AT/FP, utilities, and site improvements.
2	FBNV079000	Addition/ Alteration to A-10 TSSC Facility, Building 3426	Building: 11,025 Pavements: none Demo: none	The 8,525 SF facility, Building 3426, would be converted and a 2,500 SF addition would be added, including relocation of walls, architectural work, electrical work, and mechanical work.
3	FBNV040042	Construct Addition to CSAR AGE Storage, Building 4721	Building: 2,700 SF Pavements: none Demo: 2,457 SF	Under this project, 2,700 SF would be added to the CSAR AGE storage facility, Building 4721. Building 4815 would be demolished.
4	FBNV070010	Repair (Close) Six Base Water Wells	Building: none Pavements: none Demo: none	Under this project, the following six Base water wells would be closed: 5, 6, 7, 8, 12, and 13.
5	FBNV040134	Construct Parking Lot at the Base Theater	Building: none Pavements: 90,000 SF Demo: 80,000 SF	Approximately 90,000 SF of new and reconfigured existing asphalt pavements, concrete curb and gutter, concrete sidewalks, site security elements, and native landscaping would be developed to the south of Building 4153 to meet AT/FP requirements. Parking would be replaced on a one-to-one basis resulting in zero net increase or decrease in available parking.
6	FBNV060062A	Construct Addition to 357 FS Squadron Operations, Building 5247	Building: 2,000 SF Paving: none Demo: none	Approximately 2,000 SF would be added to the southeastern portion of the existing 357 FS Squadron Operations Facility, Building 5247. The addition would include reinforced concrete foundation, masonry walls, structural steel framing, roofing system, fire protection systems, utilities, site improvements, and all necessary support.
7	FBNV060073	Construct a C-130 JEIM Facility	Building: 1,000 SF Pavements: none Demo: 4,140 SF <sup>1</sup>	Under this project, a 1,000 SF C-130 JEIM facility would be constructed between Buildings 1237 and 1226 consisting of reinforced concrete foundation, masonry walls, structural steel framing, roofing system, fire protection systems, utilities, site improvements, and all necessary support. This facility would be a drive-through facility. Building 133 would be demolished.

**Table 2.1-1. Proposed Davis-Monthan Project Details**  
(Page 2 of 2)

<i>Number</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Areal Extent/Disturbance</i>	<i>Project Details</i>
8	FBNV060074	Construct an A-10 JEIM Facility	Building: 2,500 SF Pavements: none Demo: 4,140 SF <sup>1</sup>	A 2,500 SF A-10 JEIM facility would be constructed between Buildings 1237 and 1226 consisting of reinforced concrete foundation, masonry walls, structural steel framing, roofing system, fire protection systems, utilities, site improvements, and all necessary support. This facility would be a drive-through facility. Building 133 would be demolished.
9	FBNV060076A	Construct Addition to 358 FS Squadron Operations, Building 5600	Building: 2,000 SF Pavements: none Demo: 5,000 SF	Approximately 2,000 SF would be added to the southeastern portion of the existing 358 FS Squadron Operations Facility, Building 5600. The addition would consist of reinforced concrete foundation and floor slab, masonry exterior walls, built-up vault roof system, fire protection systems, vault Heating, Ventilation, and Air Conditioning (HVAC), utilities, site improvements, demolition, and all necessary support. Approximately 40 parking spaces would be eliminated and not replaced.
10	FBNV083007	Construct Type III Hydrant Fueling System	Building: 9,928 SF Pavements: none Demo: 5,000 SF	A JP-8 type III hydrant refueling system and a new fuels management facility would be constructed serving nine aircraft parking positions complete with a standard Type III pumphouse with pumps and filter separators, two 10,000 barrel operating tanks with impermeable dikes and basins, a looped fuel system, and all other necessary support. This project includes demolition of nine parking positions (21-25 and 28-31) and existing pump houses, Buildings 206 and 207.
11	FBNV070052	Demolition of Dormitory, Building 4220	Building: none Pavements: none Demo: 24,600 SF	The 24,600 SF Dormitory Facility, Building 4220, would be demolished. The site would be restored and landscaped after demolition.
12	FBNV070057	Demolition of Dormitory Exchange Administration Facility, Building 4320	Building: none Pavements: none Demo: 24,600 SF	The 24,600 SF Dormitory Exchange Administration Facility, Building 4320, would be demolished. The site would be restored and landscaped after demolition.

Note: 1. SF represents demolition of the same building (Building 133) and therefore the SF is only included once in the demolition total.

**Table 2.1-2. Facility Condition Codes**

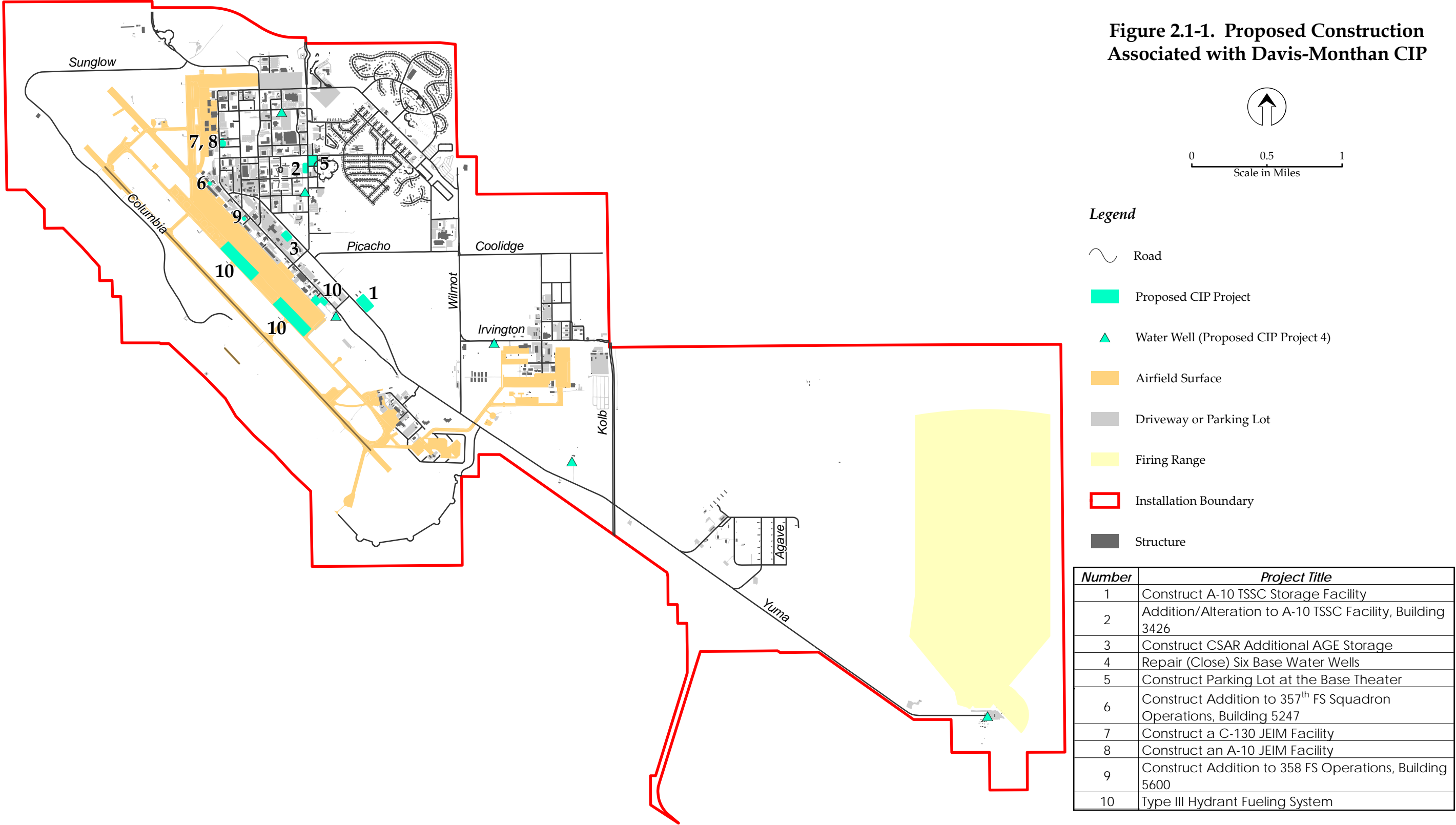
<i>Condition Code</i>	<i>Description</i>
Condition Code 1	Houses the function currently designated with reasonable maintenance and without major alterations or reconstruction and without major investment.
Condition Code 2	Upgrading is required and practical. Facility is of permanent construction, structurally sound but requires major investment to adequately serve its current purpose.
Condition Code 3	The facility is currently in use, but is of substandard construction and cannot practicably be raised to meet Condition Code 1 standards for housing the function for which it is currently designated.
Condition Code 4	Does not meet Condition Codes 1, 2, 3 or 5. Expenditure of maintenance funds on these facilities is not authorized except for safety, health, and/or “pickling” the facility.
Condition Code 5	Indicates that the facility has been committed to Congress for disposal.
Condition Code 6	Indicates that the disposal has been approved by all levels of the USAF.

Source: Air Force Institute of Technology n.d.

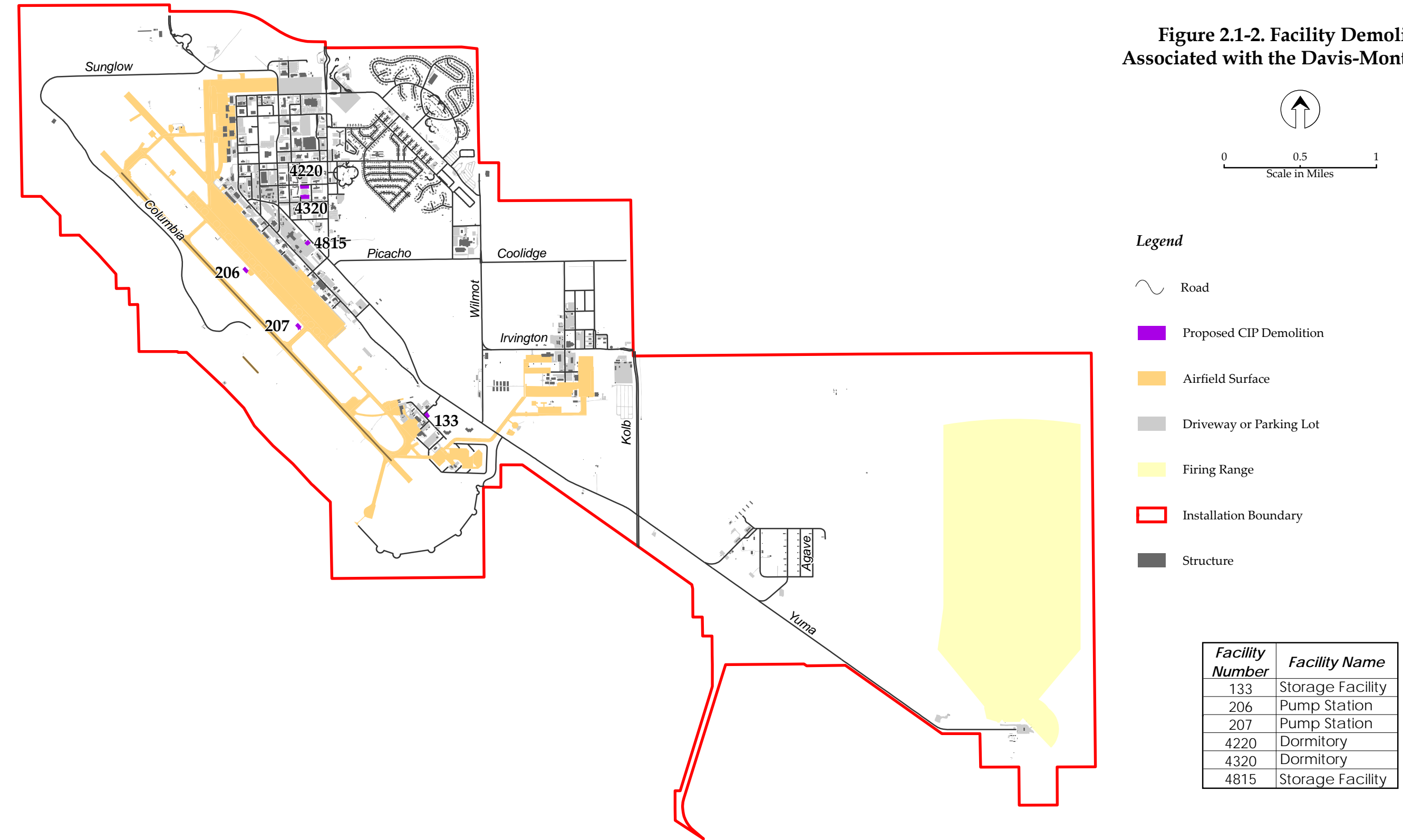
**Table 2.1-3. Facility Demolitions Associated with Davis-Monthan CIP**

<i>Facility/Building Number</i>	<i>Condition Code (1-6)</i>	<i>Reason for Demolition</i>	<i>Square Feet (SF)</i>
Storage Facility, 133 <sup>1</sup>	3	Outdated, deteriorated facility	4,140
Storage Facility, 4815 <sup>1</sup>	1	In the footprint of planned development	2,457
Pump Station, 207 <sup>1</sup>	1	In the footprint of planned development	499
Pump Station, 206 <sup>1</sup>	1	In the footprint of planned development	499
Dormitory, 4220	3	Outdated, deteriorated facility	24,600
Dormitory Exchange Administration, 4320	3	Outdated, deteriorated facility	24,600
Total Parking/Pavement	n/a	In the footprint of planned development	89,002
		<b>Total Demolition Square Footage</b>	<b>145,797 SF (3.3 acres)</b>

Note: 1. Demolition associated with proposed construction project



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## 2.2 SELECTION CRITERIA

Several selection criteria were identified for use in evaluating various sites at Davis-Monthan AFB for the 355 FW CIP. These selection criteria are identified below, including references to Base studies or regulations. The application of the criteria to the Davis-Monthan AFB CIP is presented in Table 2.2-1.

***Compatible Land Use:*** Land use is the classification of either natural or human-modified activities occurring at a given location. Natural land use includes rangeland and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, airfield, recreational, and other developed areas. Land use is regulated by management plans, policies, and regulations determining the type and extent of land use allowable in specific areas and protection specially designated for environmentally sensitive areas.

There are 12 land use categories at Davis-Monthan AFB (Table 2.2-2). Although land uses within the Base are considered to be generally compatible, most of the Base's existing land use pattern was developed during and shortly after World War II, prior to the establishment of current USAF guidelines for airfield land use patterns. As such, some anomalies and conflicts with land use patterns exist at Davis-Monthan AFB. Primary on-base conflicts are associated with airfield related uses such as structures that are located within airfield clear zones (CZs). There are no land use conflicts associated with the Proposed Action for this project (Figure 4.6-1).

***Force Protection and Security Compliance:*** As a result of terrorist activities, the DoD and the USAF have developed a series of AT/FP guidelines for military installations. These guidelines address a range of considerations that include access to the installation, access to facilities on the installation, facility siting, exterior design, interior infrastructure design, and landscaping (UFC 4-010-01, 2002). The intent of this siting and design guidance is to improve security, minimize fatalities, and limit damage to facilities in the event of a terrorist attack. All facilities within the Proposed Action will be constructed in accordance with UFC 4-010-01.

***Available Utilities and Infrastructure:*** Facility location has utilities and infrastructure nearby and/or the capacity to readily extend to any portion of the Proposed Action.

***Presence of Special Environmental Resources:***

**Waters of the United States (U.S.).** The Clean Water Act (CWA) of 1977 (33 USC § 1251 et seq.) regulates pollutant discharges that could affect aquatic life forms or human health and safety. The U.S. Army Corps of Engineers, and Executive Order (EO) 11990, *Protection of Wetlands*, regulates the discharge of dredged and/or fill material into waters of the U.S. including wetlands under Section 404 of the CWA. Waters of the U.S. include any waterbody or watercourse which has been determined to be regulated under Section 404 using the Rapanos Guidance of June 5, 2007 and may include ephemeral washes, drainage ditches, intermittent and perennial watercourses, and wetlands. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for dredging and filling in waters

on the U.S. The Proposed Action or Alternatives do not occur in or near any waters of the U.S. or wetlands (Figure 4.2-1).

**100-year Floodplain.** EO 11988, Floodplain Management, requires federal agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains. There are no projects in the Proposed Action that occur within 100-year floodplains (Figure 4.2-1).

**Environmental Restoration Program (ERP) Sites.** The DoD developed the ERP to identify, investigate, and remediate potentially hazardous material disposal sites that existed on DoD property prior to 1984. Fifty-two ERP sites and three Areas of Concern (AOCs) have been identified at Davis-Monthan AFB and are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Forty-five of the ERP sites require no further action; three sites require long-term monitoring; one site is in interim removal status; and two sites are under long-term operational status. The Davis-Monthan AFB Management Action Plan summarizes the current status of the Base environmental restoration program, and presents a comprehensive strategy for implementing actions necessary to protect human health and the environment. This strategy integrates activities under the ERP and the associated environmental compliance programs that support full restoration of the Base. Continuing efforts to comply with applicable laws and regulations ensure that present resource and waste management practices are performed in a manner that protects human health and the environment.

Under the Proposed Action, Well #13 associated with Project #4, Repair (Close) Six Base Water Wells, is located within an ERP site; however, no impact should occur as repair to base wells consists solely of capping off and closure to associated wells (Figure 4.10-1). In addition, ERP site ST-35 would be impacted in association with the demolition of Pump Station #206 (Project #10, Construct Type III Hydrant Fueling System); site ST-53 would be impacted by the demolition of Dormitories #4220 and #4320; and AOC-51 would be impacted by the construction of Project #1, Construct A-10 Training System Support Center Storage Facility. Air Combat Command (ACC) policy requires that any proposed project on or near a Davis-Monthan AFB ERP site be coordinated through the Davis-Monthan ERP Manager.

**Historic and Archaeological Resources.** Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources that are either eligible for listing, or listed in, the National Register of Historic Places (NRHP). Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional resources identified by American Indian tribes or other groups. In 1999, the DoD promulgated its American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. The Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal

resources, tribal rights, and Indian lands before decisions are made by the services. There are no impacts to Historic and Archaeological Resources within the Proposed Action.

**Fire/Rescue Response Time:** Facility locations should be near enough to Fire Station to meet required Fire/Rescue response time.

**No Conflicts with Safety Zones:** Defense Department Explosives Safety Board (DDESB) 6055.9-STD and Air Force Manual (AFM) 91-201 Explosives Safety Standards defined distances that need to be maintained between munitions storage areas and a variety of other types of facilities. These distances, called quantity-distance (QD) arcs, are determined by the type and quantity of explosive material to be stored. Each explosive material storage or handling facility has QD arcs extending outward from its sides and corners for a prescribed distance. Within these QD arcs, development is either restricted or prohibited altogether in order to ensure safety of personnel and minimize potential for damage to other facilities in the event of an accident.

The DoD identifies APZs as a planning tool for local planning agencies. APZs are areas where an aircraft mishap is most likely to occur if one occurs. They do not reflect the probability of an accident. APZs follow arrival, departure, and pattern flight tracks and are based upon analysis of historical data. The CZs at Davis-Monthan AFB are within Base boundaries; however, the Accident Potential Zone (APZ) I and II extend outside of the Base. Both CZs have obstructions within them. The CZ on the south end of the runway has 11 obstructions; while the CZ on the north end has 6 obstructions. Davis-Monthan AFB is currently working to address these violations (Davis-Monthan AFB 2006a).

Some projects in the Proposed Action lie within the safety zones located on Davis-Monthan AFB including portions of Project #10, Construct Type III Hydrant Fueling System (as well as the demolition of Pump Station #207) and Well #6 associated with Project #4, Repair (Close) Six Base Water Wells, which lie within QD arcs (Figure 4.9-1).

**Adequate Land for Building and Ground Level Parking:** Facility locations should be of sufficient size to accommodate proposed buildings (with required setbacks) and proposed parking needs without the need to build additional facilities, such as a multi-story garage.

## **2.3 ALTERNATIVES TO THE PROPOSED ACTION: IMPLEMENTATION OF A SUBSET OF THE CONSTRUCTION AND DEMOLITION PROJECTS**

It is feasible that only a subset of the highest priority projects would be implemented based upon availability of funding or modifications to force structure. While this alternative is less desirable than the Proposed Action, in which all projects are implemented, it is quite likely that the individual projects described under the Proposed Action would be prioritized and implemented as funding becomes available, essentially phasing the projects. This alternative would have, at most, the same set of impacts as the Proposed Action, and therefore this alternative will not be carried forward for further analysis.

**Table 2.2-1. Selection Criteria for Davis-Monthan Site Selection**

<i>Number</i>	<i>Project Title/ Project Number</i>	<i>Compatible Land Use</i>	<i>Force Protection and Security Compliance</i>	<i>Available Utilities and Infrastructure</i>	<i>Special Environmental Resources</i>	<i>Fire/Rescue Response Time</i>	<i>No Conflicts with Safety Zones</i>	<i>Adequate Land for Building and Ground Level Parking</i>
1	Construct A-10 Training System Support Center (TSSC) Storage Facility	✓	✓	✓	✗	✓	✓	✓
2	Addition/ Alteration to A-10 TSSC Facility, Building 3426	✓	✓	✓	✓	✓	✓	✓
3	Construct CSAR AGE Storage Facility/ FBNV040042	✓	✓	✓	✓	✓	✓	✓
4	Repair (Close) Six Base Water Wells/ FBNV070010	✓	✓	✓	✗	✓	✗	✓
5	Construct Parking Lot at Base Theater/ FBNV040134	✓	✓	✓	✓	✓	✓	✓
6	Construct Addition to 357 FS Squadron Operations, Building 5247/ FBNV060062A	✓	✓	✓	✓	✓	✓	✓
7	Construct C-130 JEIM Facility/ FBNV060073	✓	✓	✓	✓	✓	✓	✓
8	Construct A-10 JEIM Facility/ FBNV060074	✓	✓	✓	✓	✓	✓	✓
9	Construct Addition to 358 FS Squadron Operations, Building 5600/ FBNV060076A	✓	✓	✓	✓	✓	✓	✓
10	Construct Type III Hydrant Fueling System/ FBNV083007	✓	✓	✓	✗ <sup>1</sup>	✓	✗ <sup>1</sup>	✓
11	Demolition of Dormitory Facility, Building 4220	✓	✓	✓	✗	✓	✓	✓
12	Demolition of Dormitory Central Exchange Administration Facility, Building 4320	✓	✓	✓	✗	✓	✓	✓

Notes: 1. Constraint associated with demolition.

✓ indicates that the project has no constraints associated with the selection criteria

✗ indicates that the project has constraints associated with the selection criteria.

**Table 2.2-2. Land Use Categories at Davis-Monthan AFB**

<i>Land Use Category</i>	<i>Acres</i>	<i>Example</i>
Airfield	1,453	Runway, overruns, taxiways, aprons
Aircraft Operations and Maintenance	444	Hangars, maintenance shops, aircrew facilities
Industrial	3,470	Supply, Civil Engineering facilities, vehicle maintenance facilities
Administrative	85	Headquarters facilities, Base support, security
Community Commercial	68	AAFES, commissary, credit union, dining hall
Community Services	31	Schools, post office, library, chapel
Medical	31	Health care center, dental clinic, veterinarian facility
Accompanied Housing	291	Family housing, temporary housing, trailer courts
Unaccompanied Housing	30	Dormitories, Visiting Officers Quarters, Visiting Airman Quarters
Outdoor Recreation	332	Golf course, swimming pool, playing fields
Open Space	4,209	Conservation areas, safety clearance zones
Water	13	Storm drainage collection ponds

## 2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, the 355 FW would maintain their existing facilities and would not build or demolish facilities, as proposed. In general, the No Action Alternative would require that the 355 FW continue to operate under unnecessarily inefficient conditions. Under the No Action Alternative, these deficiencies would increasingly impair the 355 FW's ability to successfully conduct their mission and to maintain wartime readiness and training. Should the No Action Alternative be selected, Davis-Monthan AFB and the 355 FW could not adequately meet future mission requirements or changes due to deteriorating facilities and would not meet its CIP development goals:

- Combat capability and mission readiness would be compromised,
- Military and civilian staff would not have optimal facilities,
- Modernization of the force would be compromised, and
- Operating costs would continue to be inefficient.

## **2.5 ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

The Environmental Impact Analysis Process (EIAP) is used to evaluate a proposal's potential environmental consequences, and to notify and involve the public in the agency's decision-making process. The proponent of a given action is ultimately responsible for compliance with the EIAP. The USAF EIAP requires that decisions on proposals be based on an understanding of the potential environmental consequences of the Proposed Action, and its reasonable alternatives, including the No Action Alternative. Based on the EIAP, any of the alternatives could be selected for implementation.

As a part of the EIAP, this EA has been prepared to evaluate the potential environmental impacts of the proposed CIP for Davis-Monthan AFB. The following resources are analyzed in this EA: earth resources, water resources, biological resources, air quality, noise, land use and visual resources, socioeconomics and environmental justice, cultural resources, safety, hazardous materials and waste management, and infrastructure. Chapter 3.0 describes the affected environment for these resources and Chapter 4.0 addresses the potential environmental consequences of implementing either the Proposed Action or the No Action Alternative. A comparison of the environmental consequences is presented at the end of this chapter in Table 2.7-1.

### **2.5.1 Public and Agency Involvement**

EO 12372, *Intergovernmental Review of Federal Programs*, requires notifications to other agencies that may have relevant information regarding resources at the site prior to making any detailed statement of potential environmental consequences. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), Davis-Monthan AFB has notified concerned federal, state, and local agencies and is allowing them sufficient time to evaluate potential environmental impacts of the Proposed Action. All federal, state, and local agency input will be placed in Appendix A of the Final EA. All relevant comments will be addressed and incorporated into the text, as appropriate.

The USAF prepared and published newspaper advertisements announcing the availability of the Draft EA for a 30-day public and agency review to facilitate public involvement in this project. These advertisements have been placed in the *Arizona Daily Star*, the *Tucson Citizen*, and in the *Desert Airman*.

### **2.5.2 Regulatory Compliance**

#### **2.5.2.1 NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR Sections 1500–1508) (CEQ 1978). These requirements specify that an EA be prepared to:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
- Aid in an agency's compliance with NEPA when an EIS is not necessary.
- Facilitate preparation of an EIS when one is necessary.

The activities addressed within this document constitute a federal action and therefore must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the Proposed Action includes the development of the EA to address the environmental issues related to the proposed activities. The USAF implementing procedures for NEPA are contained in 32 CFR Part 989 et seq., *Environmental Impact Analysis Process*.

#### **2.5.2.2 ENDANGERED SPECIES ACT**

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531-1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened and endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their proposed actions through a set of defined procedures, which can include the preparation of a Biological Assessment and can require formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Act.

#### **2.5.2.3 CLEAN AIR ACT**

The Clean Air Act (CAA) (42 USC §§ 7401-7671, as amended) provided the authority for the U.S. Environmental Protection Agency (USEPA) to establish nationwide air quality standards to protect public health and welfare. Federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six criteria pollutants: ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter, and lead (Pb). The Act also requires that each state prepare a State Implementation Plan (SIP) for maintaining and improving air quality and eliminating violations of the NAAQS. Under the CAA Amendments of 1990, federal agencies are required to determine whether their undertakings are in conformance with the applicable SIP and demonstrate that their actions will not cause or contribute to a new violation of the NAAQS; increase the frequency or severity of any existing violation; or delay timely attainment of any standard, emission reduction, or milestone contained in the SIP.

#### **2.5.2.4 WATER RESOURCES REGULATORY REQUIREMENTS**

The CWA of 1977 (33 USC § 1251 *et seq.*) regulates pollutant discharges that could affect aquatic life forms or human health and safety. The USACE and EO 11990, *Protection of Wetlands*, regulates the discharge of dredged and/or fill material into waters of the U.S. including wetlands under Section 404 of the CWA. Waters of the U.S. include any waterbody or watercourse which has been determined to be regulated under Section 404 using the Rapanos Guidance of June 5, 2007 and may include ephemeral washes, drainage ditches, intermittent and perennial watercourses, and wetlands. EO 11988, *Floodplain Management*, requires federal



agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains.

#### **2.5.2.5 CULTURAL RESOURCES REGULATORY REQUIREMENTS**

The National Historic Preservation Act (NHPA) of 1966 (16 USC § 470) established the NRHP and the Advisory Council on Historic Preservation (ACHP), outlining procedures for the management of cultural resources on federal property. Cultural resources can include archaeological remains, architectural structures, and traditional cultural properties such as ancestral settlements, historic trails, and places where significant historic events occurred. NHPA requires federal agencies to consider potential impacts to cultural resources that are listed, nominated to, or eligible for listing on the NRHP; designated a National Historic Landmark; or valued by modern Native Americans for maintaining their traditional culture. Section 106 of NHPA requires federal agencies to consult with State Historic Preservation Offices (SHPO) if their undertakings might affect such resources. *Protection of Historic and Cultural Properties* (36 CFR 800 [1986]) provided an explicit set of procedures for federal agencies to meet their obligations under the NHPA, which includes inventorying of resources and consultation with SHPO.

The American Indian Religious Freedom Act (AIRFA) (42 USC § 1996) established federal policy to protect and preserve the rights of Native Americans to believe, express, and exercise their traditional religions, including providing access to sacred sites. The Native American Graves Protection and Repatriation Act (25 USC §§ 3001-3013) requires consultation with Native American tribes prior to excavation or removal of human remains and certain objects of cultural importance.

#### **2.5.2.6 OTHER REGULATORY REQUIREMENTS**

Additional regulatory legislation that potentially applies to the implementation of this proposal includes guidelines promulgated by EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to ensure that citizens in either of these categories are not disproportionately affected. Additionally, potential health and safety impacts that could disproportionately affect children will be considered under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

In a policy formulated to address EO 13084, *Consultation and Coordination with Indian Tribal Governments*, the DoD has clarified its policy for interacting and working with federally recognized American Indian and Alaska Native governments. Under this policy guidance, proponents must provide timely notice to, and consult with, tribal governments prior to taking any actions that have the potential to affect protected tribal resources, tribal rights, or Indian lands. Tribal input must be solicited early enough in the planning process that it may influence the decision to be made.

## 2.6 PERMIT REQUIREMENTS

The EA has been prepared in compliance with NEPA, other federal statutes such as the CAA and the CWA, and applicable state statutes and regulations. A list of Davis-Monthan AFB permits has been compiled and reviewed during the preparation of this EA. Table 2.6-1 summarizes potentially applicable federal, state, and local permits and the potential for requirements to modify the permits due to the Proposed Action. Management actions and procedures would need to be reviewed, coordinated, and/or updated to ensure USAF compliance with applicable instructions, guidance, and directives.

**Table 2.6-1. Permit Requirements for Davis-Monthan CIP Implementation**

<i>Permit</i>	<i>Resource</i>	<i>Proposed Action</i>
Synthetic Minor Permit	Air	No change to existing permit expected; equipment (i.e., generators) may require air permit modification or amendment.
Operating Permit #1701	Air	No change to existing permit expected; equipment (i.e., generators) may require air permit modification or amendment.
Activity Permit from Pima County Department of Environmental Quality (PDEQ)	Air	New permit required for any land stripping, earth moving, trenching, and/or road construction.
Davis-Monthan AFB National Pollutant Discharge Elimination System (NPDES) Storm Water	Storm Water	The Storm Water Pollution Prevention Plan (SWPPP) would need to be updated for each project.
Construction General Permit AZG2003-001	Storm Water	The Base would have to file a Notice of Intent (NOI) with the ADEQ to obtain coverage under this permit.
Notice of Intention to Drill or Abandon Wells from the Arizona Department of Water Resources (ADWR)	Ground Water	The Base would have to file a Notice of Intention with the ADWR to obtain coverage under this permit.
Davis-Monthan AFB Disposal Permit	Hazardous Waste	No change to existing permit expected.

## 2.7 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2.7-1 summarizes the potential environmental consequences of the Proposed Action and No Action Alternative, based on the detailed impact analyses presented in Chapter 4.0.

**Table 2.7-1. Summary of Potential Environmental Consequences of Implementation of the Davis-Monthan CIP**  
(Page 1 of 2)

<i><b>Resources</b></i>	<i><b>Proposed Action</b></i>	<i><b>No Action</b></i>
Earth Resources	Temporary disturbance of soils; impacts avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs incorporated. No significant impacts expected.	No changes to earth resources from the present would occur; no significant impacts expected.
Water Resources	Base to obtain coverage under Construction General Permit AZG2003-001 for storm water. Construction would increase amount of impervious surface by less than 1 percent. After construction, update SWPPP for each project. Site design currently does not affect waters of the U.S.; however, if final site design results in impacts to waters of the U.S., a Section 404 permit would be obtained from USACE. No significant impacts expected.	No changes to water resources from the present would occur; no significant impacts expected.
Biological Resources	Minor impacts to vegetation, wildlife, and migratory birds as a result of construction activities. Implement Arizona Game and Fish Department (AZGF) protocol if protected species are found to be present in construction area. Comply with Arizona Native Plant Law regarding all sensitive plants covered under law.	No changes to biological resources from the present would occur; no significant impacts expected.
Air Quality	Combustion engines and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality. Impacts would not be significant.	No changes to air quality would occur; no significant impacts expected.
Noise	Construction noise would be intermittent and short-term, and no long-term noise impacts would result.	No changes to the noise environment would occur; no significant impacts expected.
Land Use/Visual	Proposed construction projects compatible with Base planning, some existing incompatible land uses would be corrected. Visual setting of the Base would improve.	No changes to land use or visual resources would occur. Some land use compatibility issues would remain.

**Table 2.7-1. Summary of Potential Environmental Consequences of Implementation of the Davis-Monthan CIP**  
(Page 2 of 2)

<i><b>Resources</b></i>	<i><b>Proposed Action</b></i>	<i><b>No Action</b></i>
Socioeconomics/ Environmental Justice	No long term change in Base employment or expenditures; no disproportionate impacts to minority or low-income populations expected; no significant impacts expected.	No change in Base employment or expenditures; no disproportionate impacts to minority or low-income populations would occur; no significant impacts expected
Cultural Resources	No cultural or historic resources affected by action; no significant impacts expected.	Cultural resources would remain as they presently are; no significant impacts expected.
Safety	Some AT/FP violations would be corrected; some airfield obstruction violations would be corrected.	Safety conditions would remain as they currently are; AT/FP and airfield obstruction violations would not be corrected.
Hazardous Materials and Waste Management	Construction and demolition waste that cannot be recycled would be landfilled. Hazardous materials and construction debris would be handled, stored, and disposed of in accordance with applicable regulations. Any asbestos-containing material (ACM), or lead-based paint (LBP) associated with construction and/or demolition would be disposed of in accordance with appropriate ADEQ regulations. Any contaminated soil encountered would either be remediated or disposed of in compliance with appropriate regulations. A waiver for construction near any ERP site would be obtained prior to proposed activities.	Hazardous materials and waste management would remain as they presently are; no significant impacts expected.
Infrastructure	Construction and demolition vehicles would generate short-term increases in on-Base traffic. Proposed construction would lead to small increases in utilities demands. Proposed projects would improve certain Base infrastructure and utilities systems; no significant impacts would be expected.	Infrastructure would remain the same as the present condition. Some mission requirements would be unmet due to dilapidated and inefficient facilities, and identified utilities upgrades would not occur.

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## **3.0 EXISTING CONDITIONS**

Section 3.0 describes the existing environmental and socioeconomic conditions potentially affected by the Proposed Action. This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental and socioeconomic impacts of implementing the Proposed Action or its alternatives are described in Section 4.0.

In compliance with the NEPA, CEQ guidelines, and 32 CFR Part 989, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts. These resources and conditions include: earth resources, water resources, biological resources, air quality, noise, land use and visual resources, socioeconomics and environmental justice, cultural resources, safety, hazardous materials and wastes, and infrastructure.

### **3.1 EARTH RESOURCES**

#### **3.1.1 Definition of the Resource**

Earth resources include geology, soils, and topography. Geologic resources of an area typically consist of surface and subsurface materials and their inherent properties. The term “soils” refers to unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil drainage, texture, strength, shrink/swell potential, and erodibility all determine the suitability of the ground to support manmade structures and facilities. Topography refers to an area’s surface features including its vertical relief. These resources may have scientific, historical, economic, and recreational value. The ROI for earth resources in this EA includes Davis-Monthan AFB.

#### **3.1.2 Existing Conditions**

##### **3.1.2.1 GEOLOGY**

Davis-Monthan AFB is located in the Tucson Basin, an intermontane trough in the Sonoran Desert, formed between the Tucson Mountains to the west, the Rincon Mountains to the east, and the Santa Catalina Mountains to the north (Davis-Monthan AFB 2006a). Troughs such as this one are a common feature in the Basin and Range province of the southwestern U.S. The Tucson Mountains are a small range composed of Tertiary intrusive and volcanic rocks bordered by faulted, folded Paleozoic and Cretaceous sedimentary rock (Chronic 1983). The Santa Catalina and Rincon Mountains are considered to be a typical southern basin and range metamorphic core complex, in which mid-Tertiary extension uplifted the rocks from a depth of approximately mid-crust to 1.5 kilometers above the valley floor (University of Colorado at Boulder 2005). The Tucson Basin itself represents a structural basin that has been depressed between mountain ranges and partially filled with alluvial deposits eroding off the surrounding mountains or brought in from upstream. At one time, the Tucson Basin was closed; however structural uplifting and faulting during the Tertiary Period allowed drainages, such as the Santa Cruz River, to develop through the Tucson Valley. This process involved numerous erosional cycles, which resulted in a series of terraced surfaces sloping down to the present floodplain.

Once these surfaces formed, small tributaries draining adjoining mountain slopes began forming their own alluvial fans on the terraces and floodplains (USACE 1993). Davis-Monthan AFB lies on this nearly flat surface of confluent alluvial fans, known as a bajada.

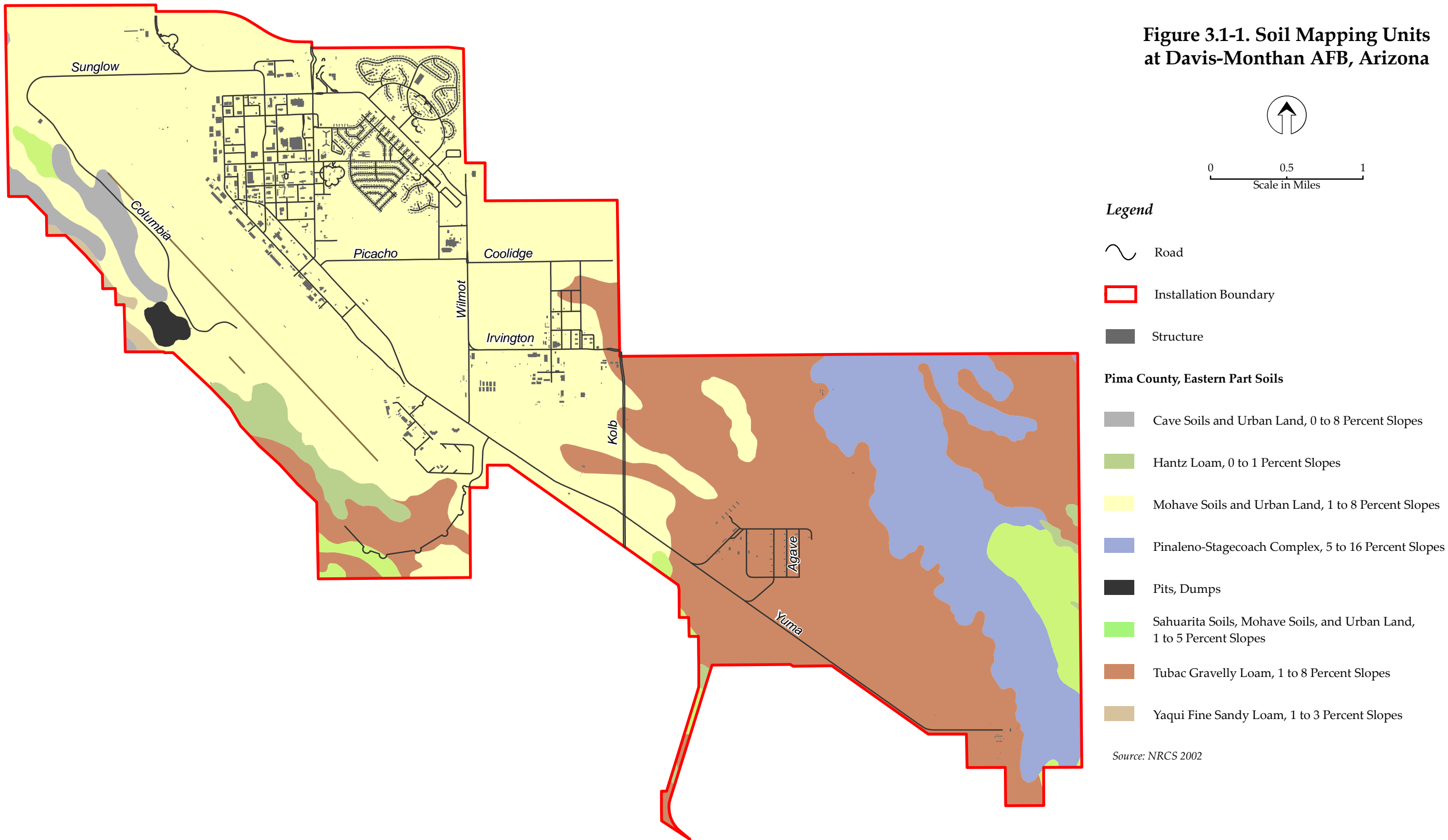
Most of the soils in the ROI, formed in transported parent material, are primarily alluvium of mixed origin and mineralogy. Much of the alluvium comes from the nearby Rock land mapping unit, which is weathering in place. On most of the valley terraces, the soils formed in mixed material high in quartz and feldspar, and in material deposited by wind. Some of the valley terraces are made up of mixed material that is high in carbonates (Natural Resources Conservation Service [NRCS] 2003). Bedrock and eolian (material accumulated through wind erosion) material are less common but are direct sources for the alluvium and some of the secondary calcium carbonate enrichment of the soils, respectively. The alluvium in the ROI is primarily derived from granite, gneiss, rhyolite, and andesite (NRCS 1993).

### **3.1.2.2 SOILS**

Soils at Davis-Monthan AFB are characteristic of the bajada. Area topsoils consist of silts, clays, sands, and gravels. Rock, clay, and caliche material compose the bajada subsoil strata. The majority of the Base soils consist of gravel and sandy loam about 36 inches deep. These soils typically have low fertility and are potentially erodible by both water and wind. Below the sandy loam layer is typically a layer of calcareous material that is approximately 48 inches thick. Base soils are typically low to moderately permeable (ACC 2002).

A soil mapping unit represents an area that is dominated by one major kind of soil, or an area dominated by several kinds of soil (NRCS 1993). Davis-Monthan AFB has eight distinct soil mapping units (Figure 3.1-1), which are described in more detail in the following paragraphs.

*Tubac gravelly loam*, 1 to 8 percent slopes. This is a very deep and well-drained soil unit that is typically found on gently sloping fan terraces that are shallowly dissected by the ephemeral drainages that typify the southwest. The surface is typically covered by 25 percent gravel and 5 percent cobble. The remainder of the surface layer is generally a brown to dark brown gravelly loam about two inches thick. The subsurface layer is generally about 12-inches thick and is a loam. The upper 17 inches of the subsoil is reddish brown clay. The lower subsoil is a gravelly sandy clay loam to a depth of 60 inches or more. Permeability of this soil is slow; available water capacity is moderate; and runoff is medium. The hazard of both water and wind erosion is considered to be slight. The predominant limitation of this soil is its shrink-swell potential. If facilities are constructed on this soil, care should be taken to design foundations and footings to divert runoff away from the buildings (NRCS 1993).





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*Pinaleno-Stagecoach complex*, 5 to 16 percent slopes. This soil unit is comprised of about 40 percent Pinaleno (very cobbly, sandy loam) and about 35 percent Stagecoach (very gravelly, sandy loam). *Pinaleno soils* are typically located on crests and shoulders that have 5 to 10 percent slope. It is very deep and well-drained and is formed in mixed alluvium. The surface is typically comprised of 30 percent cobble and stones and 20 percent gravel. The surface layer, which is about two inches thick, is brown, very cobbly, sandy loam. The upper 28 inches of the subsoil is reddish brown and extremely cobbly, sandy clay loam. The lower 30 inches is pink, extremely gravelly, sandy clay loam. Permeability of this soil is moderately slow; available water is low; and runoff is medium. The hazard of water erosion is slight while the hazard of wind erosion is very slight. *Stagecoach soils* are found on shoulders and backslopes that have 5 to 16 percent slopes. It is a very deep and well-drained soil that formed in gravelly mixed alluvium. The surface is typically covered by 50 to 65 percent gravel and cobble. The surface layer is light brown, very gravelly sandy loam about ten inches thick. The adjacent layer is a pinkish very gravelly loam and extremely gravelly loam approximately 30 inches thick. The substratum to a depth of 50 inches or more is light brown very gravelly loamy sand. The Stagecoach soils are calcareous throughout. Permeability of the Stagecoach soil is moderate; available water capacity is low; and runoff is medium. As with the Pinaleno soil, the hazard of water erosion is slight and the hazard of wind erosion is very slight. The primary limitation of this soil complex for development is slope and the high lime content of the Stagecoach soils (NRCS 1993).

*Sahuarita soils, Mohave soils, and Urban land*, 1 to 5 percent slopes. This map unit is generally found on gently sloping fan terraces, and has no regular pattern in terms of its percentage of composition. The *Sahuarita soil* is very deep and well-drained, and is formed in mixed alluvium. The surface is typically covered by 35 to 55 percent gravel. The surface layer is about three inches thick and is a yellowish, very gravelly, fine, sandy loam. The subsoil is also a yellowish fine sandy loam about 25 inches thick. The adjacent layer is a buried subsoil of brown loam that is 17 inches thick and brown very gravelly sandy clay loam that is 15 inches or more thick. These soils are also calcareous throughout. Permeability of the *Sahuarita soil* is moderate to moderately slow; available water capacity is moderate; and runoff generally slow to medium. The hazard of water erosion is slight and the hazard of wind erosion is very slight. Formed in mixed alluvium also, the *Mohave soil* is also very deep and well-drained. The surface layer is about three inches thick and is a yellowish brown loam. The subsurface layer is brown sandy loam and is three inches thick. The upper five inches of the subsoil is brown sandy clay loam with the next 13 inches brown and light brown clay loam. The lower 16 inches is reddish brown sandy, clay loam and clay loam. The substratum to a depth of 60 inches or more is loam. Permeability of the *Mohave soil* is moderately slow, available water capacity is high, and runoff is slow to medium. The hazard of water erosion is slight to moderate, and the hazard of wind erosion is moderate. *Urban land* consists of areas of soil that are so altered by construction or obscured by structures and pavement that identification of the original soil is not possible. This soil mapping unit is well-suited to urban development. The primary limitations are the moderate shrink-swell character of the *Mohave soil* and dustiness in disturbed areas (NRCS 1993).

*Mohave soils and Urban land*, 1 to 8 percent slopes. Formed in mixed alluvium also, the *Mohave soil* is also very deep and well-drained. The surface layer is about three inches thick and is a yellowish brown loam. The subsurface layer is brown sandy loam and is three inches thick. The upper five inches of the subsoil is brown sandy clay loam with the next 13 inches brown and light brown clay loam. The lower 16 inches is reddish brown sandy, clay loam and clay loam. The substratum to a depth of 60 inches or more is loam. Permeability of the *Mohave soil* is moderately slow, available water capacity is high, and runoff is slow to medium. The hazard of water erosion is slight to moderate, and the hazard of wind erosion is moderate. *Urban land* consists of areas of soil that are so altered by construction or obscured by structures and pavement that identification of the original soil is not possible. This soil mapping unit is well-suited to urban development. The primary limitations are the moderate shrink-swell character of the *Mohave soil* and dustiness in disturbed areas (NRCS 1993).

*Hantz loam*, 0 to 1 percent slopes. Formed in mixed alluvium, this very deep, well-drained soil is found in relatively level swales on alluvial fans and floodplains. The surface layer is typically brown loam about five inches thick. The subsurface layer is grayish brown clay loam and is seven inches thick. The substratum is typically a grayish brown clay that is 33 inches thick, and the next layer is brown clay that is 16 or more inches thick. This soil is calcareous throughout its profile. Permeability of the *Hantz loam* is slow, available water capacity is high, and runoff is medium. The hazard of water erosion is generally slight; however, headcutting and deposition may occur during heavy storm events. The soil is subject to periods of flooding during storm events. The hazard of wind erosion is considered to be moderate. The *Hantz soil* is poorly suited to urban development due to flooding and its high shrink-swell potential (NRCS 1993).

*Cave soils and Urban land*, 0 to 8 percent slopes. This map unit is generally found on nearly level to gently sloping relict fan terraces and has no regular pattern in terms of its percentage of composition. Formed in mixed alluvium, the *Cave soil* is very shallow to a lime-cemented hardpan and is well-drained. The surface layer is typically brown, gravelly, fine sandy loam about four inches thick. The next layer is a pinkish white gravelly fine sandy loam that is three inches thick. Caliche, which is a white, indurated, lime hardpan is found at a depth of seven inches. Depth of the caliche ranges from 4 to 20 inches. Under the caliche, to about 50 inches, is pale brown gravelly loamy sand. These soils are also calcareous throughout the profile. Permeability of the *Cave soil* is moderate, available water capacity is very low, and runoff is medium to rapid. The hazard of both water and wind erosion is slight. *Urban land* consists of areas of soil that are so altered by construction or obscured by structures and pavement that identification of the original soil is not possible. The primary limitation of this soil type to development is the caliche, which limits excavation for building foundations (NRCS 1993).

*Yaqui fine sandy loam*, 1 to 3 percent slopes. Formed in mixed alluvium, this is a very deep and well-drained soil. The surface layer is typically brown, fine sandy loam about four inches thick. The subsoil is brown, sandy clay loam 27 inches thick. The next layer is a buried subsoil of yellowish red clay loam that is 12 inches thick over a sublayer of pink gravelly loam to 60 inches or more. These soils are calcareous throughout. Permeability of the *Yaqui soil* is moderate to 31 inches and moderately slow below this depth, available water capacity is high, and runoff is

generally slow. The hazard of water erosion is slight, while hazard of wind erosion is moderately high. The primary limitations to development on this soil are flooding and wind erosion (NRCS 1993).

*Pits and Dumps.* This soil unit is found on hills and mountains, with slopes ranging from 0 to 100 percent. This soil unit is 40 percent open pit mines, 20 percent extremely stony waste rock dumps, and 15 percent mine-tailing impoundments and mine support facilities. The primary limitations to development on these sites are the slope and the hazards of wind and water erosion (NRCS 1993).

### **3.1.2.3 TOPOGRAPHY**

The terrain on Davis-Monthan AFB is predominantly flat, sloping down from the southeast to the northwest. The elevation ranges from 2,550 feet above mean sea level (MSL) on the west side of the Base, to 2,950 feet above MSL on the east side of the Base. There are only two areas on Base that have any significant slope: the road cut for Kolb Road as it passes through the Base and the Atterbury Wash, which is located in the eastern part of the Base (Davis-Monthan AFB 2001a).

## **3.2 WATER RESOURCES**

### **3.2.1 Definition of the Resource**

Water resources analyzed in this EA include surface water and ground water quantity and quality. Surface water resources include lakes, rivers, and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health. Ground water includes the subsurface hydrologic resources of the physical environment and is an essential resource. Ground water properties are often described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition.

Other issues relevant to water resources include the downstream water and watershed areas affected by existing and potential runoff, and hazards associated with 100-year floodplains. Floodplains are defined by EO 11988, *Floodplain Management*, as “the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, the area subject to a one percent or greater chance of flooding in any given year” (that area inundated by a 100-year flood). Floodplain values include natural moderation of floods, water quality maintenance, ground water recharge, as well as habitat for many plant and animal species.

The ROI for water resources in this EA includes Davis-Monthan AFB and the Tucson Basin.

### **3.2.2 Existing Conditions**

#### **3.2.2.1 SURFACE WATER**

Davis-Monthan AFB is located within the Tucson Basin, which is drained by the Santa Cruz River, which generally flows due north approximately 2 miles west of the Base. Major tributaries of the Santa Cruz River in the vicinity of the Base are the Rillito River, Julian Wash,

and Pantano Wash. Pantano Wash is the nearest of these tributaries to the Base, located about 0.5 miles northeast of the Base (Davis-Monthan AFB 2004b).

The climate within the ROI is characterized as warm and semi-arid. An average of approximately 12 inches of precipitation falls within the Tucson area on an annual basis, with about half of this total occurring between July and September in the form of scattered showers or frequent, isolated thunderstorms during the monsoon season. These events often result in overflows of the typically dry washes, and sometimes lead to localized flash flooding. More gentle rains typically occur between December and March (Davis-Monthan AFB 2006a).

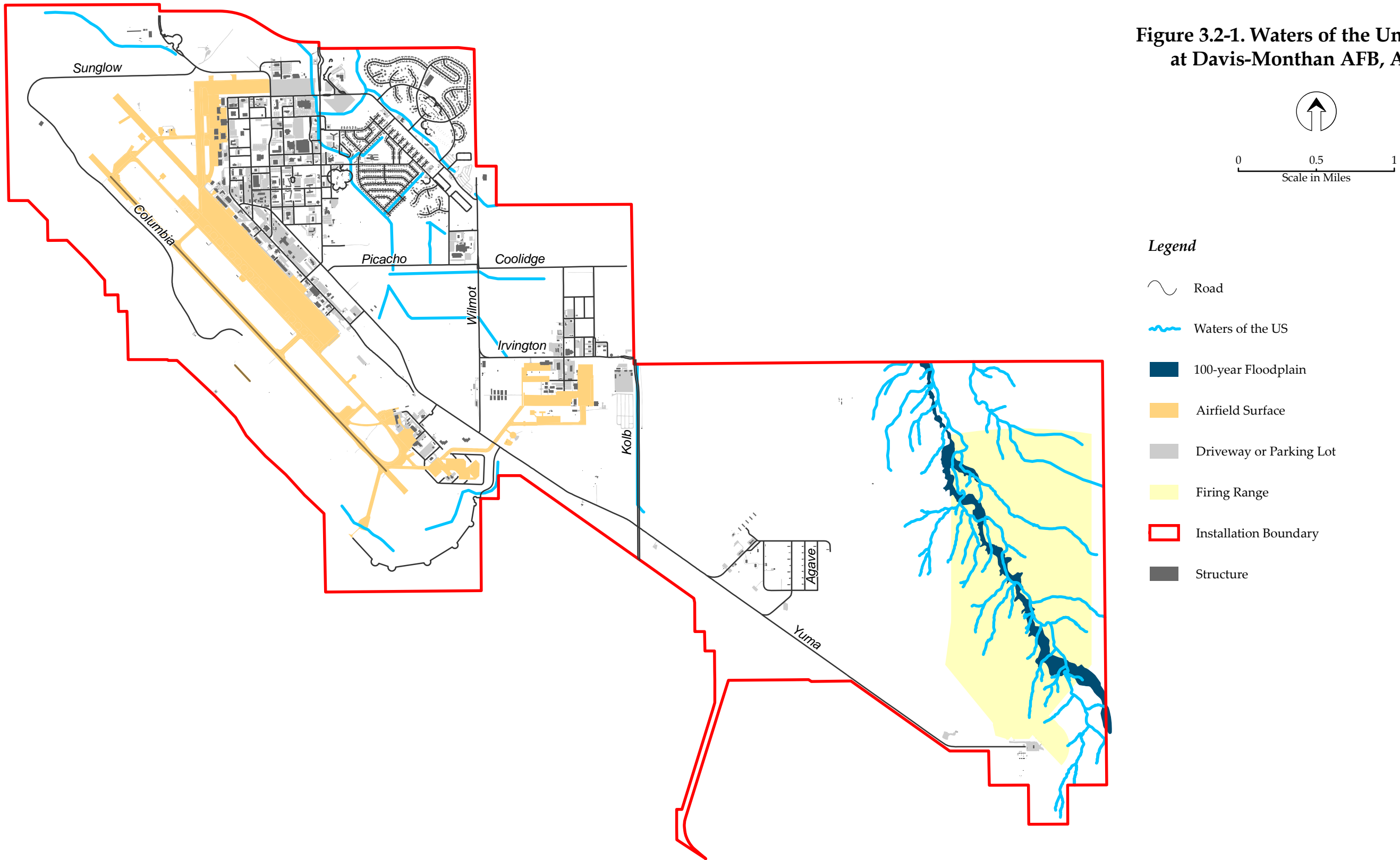
No perennial drainages are located on the Base. Due to the small amount and infrequent nature of precipitation in the region, the local drainages are ephemeral, flowing only during and immediately following rainstorms. The main surface water feature on the Base is Atterbury Wash, which is ephemeral and is located in the eastern portion of the Base (Figure 3.2-1).

Surface drainage at Davis-Monthan AFB has been modified to comprise a series of ditches, channels, and culverts that ultimately discharge downstream into the Santa Cruz River. The storm water drainage system at the Base consists of 11 drainage areas, each featuring one or more outfalls (an outfall is defined as a point source that discharges storm water to waters of the U.S.). These drainage areas divert surface runoff to either a detention basin located about one mile off Base, the Tucson Diversion Channel, a pond at Lakeside Park, or Pantano Wash via Atterbury Wash or a series of unnamed culverts, channels, or ditches. These surface waters eventually reach the Santa Cruz River (Davis-Monthan AFB 2001a, Davis-Monthan AFB 2004b).

Storm water at Davis-Monthan AFB is managed in accordance with the NPDES Multi-sector General Permit (MSGP) AZR05A12F issued by the USEPA (Davis-Monthan AFB 2004b). In order to comply with the requirements of the MSGP, Davis-Monthan AFB has prepared and implemented a SWPPP that includes water quality monitoring requirements and Best Management Practices (BMPs) to minimize the potential for contaminants to reach nearby surface waters.

#### **3.2.2.2 GROUND WATER**

The Base's primary water source is ground water drawn from the Tinaja Beds and the Fort Lowell Formation of the Tucson Basin aquifer. Depletion of local aquifers is a concern in the ROI as water levels have declined an estimated 50 to 100 feet due to the high level of extraction combined with low recharge rates. Ground water depletion is expected to continue for the foreseeable future due to continued urbanization of the Tucson area. Another concern with regard to local ground water is contamination; a large plume of tri-chloroethylene lies within the vicinity of the Tucson International Airport, about 5 miles southwest of the Base. It is not believed that this contamination currently threatens Base water supplies (Davis-Monthan AFB 2001a, Davis-Monthan AFB 2006a).



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### **3.2.2.3 FLOODPLAINS**

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps covering the ROI, Davis-Monthan AFB is located in an area categorized as Zone D: “Areas in which flood hazards are undetermined” (FEMA 1999). However, a floodplain analysis of Davis-Monthan AFB completed in 1998 provides detailed flood data for the Base and Atterbury Wash, specifically (Figure 3.2-1). The floodplain analysis estimated that the peak discharge associated with a 100-year flood of Atterbury Wash would be 2,906 cubic feet per second (cfs), and that the lateral width of the 100-year flood would range from 69 to 1,154 feet due to the extreme variations in stream geometry (Davis-Monthan AFB 1998a, 2006a).

## **3.3 BIOLOGICAL RESOURCES**

### **3.3.1 Definition of the Resource**

Biological resources consist of native or naturalized plants and animals, along with their habitats, including wetlands. Although the existence and preservation of biological resources are both intrinsically valuable, these resources also provide essential aesthetic, recreational, and socioeconomic benefits to society. This section focuses on plant and animal species and vegetation types that typify or are important to the function of the ecosystem, are of special societal importance, or are protected under federal or state law or statute. For purposes of this assessment, sensitive biological resources are defined as those plant and animal species listed as threatened or endangered by the USFWS and species that are listed for conservation-related reasons by the state of Arizona or other entities. Three categories of protection status are included in this section including 1) federal listed threatened and endangered species, 2) state listed species, and 3) other sensitive species.

**Federal Listed Threatened and Endangered Species.** The ESA of 1973 provides protection to species listed under this category. Endangered species are those species that are at risk of extinction in all or a significant portion of their range. Threatened species are those that could be listed as endangered in the near future.

**State Listed Species.** The state of Arizona maintains a list of the Wildlife of Special Concern in Arizona (WSCA) in the Arizona Heritage Data Management System, which is maintained by AZGF. The list identifies these species as those whose occurrence in Arizona is or may be in jeopardy, or has known or perceived threats or population declines, as described by the AZGFs listing of WSCA. Additionally, under the Arizona Native Plant Law (1993), the Arizona Department of Agriculture has identified plant species of particular concern throughout the state. Plants on this list are placed in one of five categories of protection: Highly Safeguarded Protected Native Plants, Salvage Restricted (collection with a permit only), Export Restricted (export out of state prohibited), Salvage Assessed (permits required to remove live trees), and Harvest Restricted (permit required to remove plant by-products).

**Other Sensitive Species.** Species under this heading are those that are federal species of concern or species listed that are identified as rare or on a watch list under the Arizona Natural Heritage Program state ranking system. These are usually species of regional concern and may



or may not be adopted as state or federally threatened or endangered. At present, these species receive no legal protection under the ESA.

In addition, EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (2001), recognized the ecological and economic importance of migratory birds to this and other countries. It requires federal agencies to evaluate the effects of their actions and plans on migratory birds (with an emphasis on species of concern) in their NEPA documents. Species of concern are those identified in 1) the report "Migratory Nongame Birds of Management Concern in the United States" (USFWS 1995a), 2) priority species identified by established plans such as those prepared by Partners in Flight, or 3) listed species in 50 CFR 17.11 *Endangered and Threatened Wildlife*.

### **3.3.2 Existing Conditions**

#### **3.3.2.1 VEGETATION**

Tucson, Arizona lies within the American Semi-desert and Desert Province, which is characterized by extensive plains, from which isolated mountains and buttes abruptly rise (Bailey 1995). Vegetation is typically sparse and the flora of this province is characteristic of the Sonoran Desert and well adapted to extremely high temperatures, high exposure to solar radiation, and low precipitation.

Davis-Monthan AFB is specifically classified into the following four vegetation subclasses (Davis-Monthan AFB 1998b, 2001a): landscaped and mowed (located primarily in the cantonment area of the Base), Sonoran Desertscrub, Sonoran Desert Riparian, and Semi-Desert Grassland (the latter three primarily occur in undeveloped areas of the Base).

The Sonoran Desertscrub community is the most common community to the Sonoran Desert. There are two subdivisions of the community that are most common in the Tucson area: the Arizona Upland and the Lower Colorado Valley subdivisions. Davis-Monthan AFB is located within the boundaries of the Arizona Upland subdivision, but due to the proximity, similarity of habitat, and topography, many aspects of the Lower Colorado Valley subdivision are evident as well. The Arizona Upland Subdivision includes some of the most famous and picturesque portions of the Sonoran Desert (Davis-Monthan AFB 2001a).

The Sonoran Desert Riparian community is found at Davis-Monthan AFB primarily along Atterbury Wash and comprises a relatively small proportion of the total acreage of the Base. Because of the greater diversity and density of vegetation found in a riparian community, this community provides habitat for many species (Davis-Monthan AFB 2001a).

The Semi-Desert Grassland community is a landscape dominated by perennial grass-scrub species. It is not likely that pure stands of Semi-Desert Grasslands still exist at Davis-Monthan AFB due to selective pressures in which shrubs, cacti, and other forbs have begun to replace the original grassland species. However, those areas on the installation where grasses constitute a substantial portion of cover may be remnants of this community (Davis-Monthan AFB 2001a).

The cantonment area of Davis-Monthan AFB is actively landscaped with a variety of native and nonnative grasses, shrubs, and trees. The developed area comprises approximately 60 percent

of the Base. These areas consist primarily of buildings, roads, and the airfield. The remaining 40 percent of the Base is undeveloped and contains native vegetation reflecting its Sonoran desert influence. Table 3.3-1 summarizes floristic species that typically occur in each of these classes at Davis-Monthan AFB.

### **ARIZONA NATIVE PLANT LAW**

Arizona contains more rare and unusual plants than anywhere else in the U.S. Under Arizona Native Plant Law (Arizona Revised Statutes Title 3, Chapter 7, *Arizona Native Plants*), native plants cannot be removed from any Arizona land without the permission of the landowner and a permit from the Arizona Department of Agriculture. Plants that fall under this jurisdiction include the saguaro, hedgehog cactus, pincushion cactus, and numerous others. Many of these species occur on Davis-Monthan AFB.

### **3.3.2.2 WILDLIFE**

Wildlife typical of the American Semidesert and Desert province are typically well-adapted to extreme temperatures and low precipitation. Ungulates are largely absent from the desert, living primarily in the paloverde-cactus shrub community. Carnivores, including the desert kit fox (*Vulpes velox macrotis*) and the coyote (*Canis latrans*) are common in this province and are typically nocturnal. Other common species found in this province include the western spotted skunk (*Spilogale gracilis*), kangaroo rats (*Dipodomys* species), and pocket mice (*Perognathus* species). Desert birds include the loggerhead shrike (*Lanius ludovicianus*), Gila woodpecker (*Melanerpes uropygialis*), Gambel's quail (*Callipepla gambelii*), and the cactus wren (*Campylorhynchus brunneicapillus*). Reptiles include many species of snake and lizard (Bailey 1995).

Wildlife that occurs on Davis-Monthan AFB is typical of the Sonoran Desert. Species occurring on the Base are also generally adapted to urban environments as over half the Base is characteristic of this land classification. This developed portion of the Base (the cantonment area) contains habitats and species more typical of rural and agricultural areas where disturbance has previously occurred. Grassy and landscaped areas are often watered, attracting a wide variety of wildlife species, particularly birds. Base structures can be attractive to bats and birds as roosting and nesting areas. Davis-Monthan AFB is known to have a diverse wildlife community. There are over 120 avian species, several mammalian, reptilian, and amphibian species as well as hundreds of invertebrate species (Davis-Monthan 2001a).

A representative list of common wildlife that may occur at Davis-Monthan AFB is listed in Table 3.3-2.

**Table 3.3-1. Common Vegetation Communities Likely to Occur on Davis-Monthan AFB**

<i>Community</i>	<i>Latin Name</i>	<i>Common Name</i>
<b>Sonoran Desert Scrub</b>	<i>Larrea tridentata</i>	Creosote bush
	<i>Ambrosia dumosa</i>	White bursage
	<i>Hymenoclea monogyra</i>	Burrobrush
	<i>Carnegiea gigantea</i>	Saguaro cactus
	<i>Opuntia fulgida</i> and <i>Opuntia versicolor</i>	Cholla species
	<i>Chloris</i> spp.	Windmill grass
	<i>Aristida</i> spp.	Three-awns
	<i>Bouteloua</i> spp.	Grama grass
	<i>Parkinsonia microphylla</i> and <i>Parkinsonia aculeata</i>	Paloverde
	<i>Acacia greggii</i>	Catclaw
	<i>Baccharis glutinosa</i>	Seep willow
	<i>Prosopis velutina</i>	Velvet mesquite
	<i>Echinocactus wislizenii</i>	Barrel cacti
	<i>Opuntia</i> spp.	Cacti
<b>Semi-Desert Grassland<sup>1</sup></b>	<i>Bouteloua rothrockii</i>	Grama grass
	<i>Bouteloua californica</i>	Grama grass
	<i>Bouteloua radicata</i>	Grama grass
	<i>Bouteloua parryi</i>	Grama grass
	<i>Bouteloua barbata</i>	Grama grass
	<i>Cathestecum erectum</i>	False grama grass
	<i>Aristida hamulosa</i>	Three-awns grass
	<i>Aristida wrightii</i>	Three-awns grass
	<i>Aristida ternipes</i>	Three-awns grass
	<i>Aristida aristidoides</i>	Three-awns grass
	<i>Heteropogon contortus</i>	Gangle-head grass
	<i>Chloris</i> spp.	Windmill grass
<b>Sonoran Desert Riparian</b>	<i>Lycium brevipes</i>	Tomatillo
	<i>Acacia greggii</i>	Catclaw
	<i>Celtis pallida</i>	Desert hackberry
	<i>Prosopis</i> spp.	Mesquite
	<i>Baccharis salicifolia</i>	Desert broom
	<i>Baccharis glutinosa</i>	Seep willow
	<i>Baccharis viminea</i>	Mule fat
<b>Landscaped/Mowed<sup>2</sup></b>	<i>Eragrostis lehmanniana</i>	Lehmann's lovegrass

Notes: 1. These species may occur in patchy distribution, contiguous habitat is unlikely due to modern development at Davis-Monthan AFB.  
2. Species occurring in the other three classes may also occur in this class as ornamental species or patchy distribution.

Sources: Davis-Monthan AFB 1998b and 2000a

**Table 3.3-2. Common Wildlife Likely to Occur on Davis-Monthan AFB**

<i>Class</i>	<i>Latin Name</i>	<i>Common Name</i>
<b>Mammals</b>	<i>Canis latrans</i>	Coyote
	<i>Lepus californicus</i>	Black-tailed jackrabbit
	<i>Sylvilagus audubonii</i>	Desert cottontail
	<i>Taxidea taxus</i>	Badger
	<i>Felis rufus</i>	Bobcat
	<i>Spilogale putorius</i>	Spotted skunk
	<i>Tayassu tajacu</i>	Javelina
	<i>Eptesicus fuscus pallidus</i>	Big brown bat
	<i>Tadarida brasiliensis mexicana</i>	Mexican free-tailed bat
<b>Birds</b>	<i>Campylorhynchus brunneicapillus</i>	Cactus wren
	<i>Toxostoma curvirostre</i>	Curve-billed thrasher
	<i>Callipepla gambelii</i>	Gambel's quail
	<i>Columbina inca</i>	Inca dove
	<i>Corvus corax</i>	Raven
	<i>Vermivora</i> spp. and <i>Dendroica</i> spp.	Warbler species
	<i>Bubo virginianus</i>	Great-horned owl
	<i>Accipiter cooperii</i>	Cooper's hawk
	<i>Parabuteo unicinctus</i>	Harris' hawk
	<i>Buteo jamaicensis</i>	Redtail hawk
	<i>Buteo swainsoni</i>	Swainson's hawk
	<i>Falco sparverius</i>	American kestrel
	<i>Geococcyx californianus</i>	Greater roadrunner
	<i>Zonotrichia leucophrys</i>	White-crowned sparrow
	<i>Passerella iliaca</i>	Fox sparrow
	<i>Passer domesticus</i>	House sparrow
<b>Reptiles</b>	<i>Phrynosoma solare</i>	Regal horned lizard
	<i>Sceleporus undulatus</i>	Eastern fence lizard
	<i>Heloderina suspectrum</i>	Gila monster
	<i>Pituophis melanoleucus</i>	Gopher snake
	<i>Crotalus atrox</i>	Diamondback rattlesnake

Sources: Davis-Monthan AFB 1998b and 2001a; personal communication, Lisa 2007

### **MIGRATORY BIRDS**

Davis-Monthan AFB falls between the central and pacific flyways and within the Sonoran Desertscrub Habitat Region. There are six species listed in the Arizona Partners in Flight Conservation Plan. These species include: cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), Costa's hummingbird (*Calypte costae*), gilded flicker (*Colaptes chrysoides*), purple martin (*Progne subis*), Le Conte's thrasher (*Toxostoma lecontei*), and the rufous-winged sparrow (*Aimophila carpalis*). The cactus ferruginous pygmy-owl is listed as a priority species (Latta *et al.* 1999). Of these six species, only the rufous-wing sparrow and Costa's hummingbird have been documented on the Base (Tucson Bird Count 2004; personal communication, Lisa 2007). The other four species may occur on the Base or the surrounding areas, but their occurrence would likely be transient.

### **SPECIAL-STATUS SPECIES**

There are currently 76 special status species listed by the AZGF for Pima County, Arizona. Of the 76 species, two species are known to occur on Base, and three species have potential to occur based on their habitat requirements. These species include the western burrowing owl, American peregrine falcon, lesser long-nosed bat, cave myotis, and the Pima pineapple cactus. No federally threatened, endangered, or proposed threatened species are known to occur on Davis-Monthan AFB (Davis-Monthan AFB 1998b, 2006b; personal communication, Lisa 2007). Table 3.3-3 contains a list of special status species known to occur on, or in the nearby vicinity of (within six miles) Davis-Monthan AFB and the general habitat requirements for each species.

#### **3.3.2.3 WETLANDS**

Wetlands are protected from development under EO 11990, *Protection of Wetlands*. Guidance from the EO requires federally funded activities associated with wetlands to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural beneficial values of wetlands.

There are no jurisdictional wetlands found on Base; however, a ponding area located on the northern end of the runway was determined to be a jurisdictional water of the U.S. (Davis-Monthan 2006b).

**Table 3.3-3. Special-Status Species Occurring On or Near Davis-Monthan AFB**

<i>Class</i>	<i>Genus species</i>	<i>Common Name</i>	<i>USFWS</i>	<i>AZGF</i>	<i>General Species Habitat Requirements</i>	<i>Occurrence at Davis-Monthan AFB based on habitat requirements</i>
Bird	<i>Athene cunicularia hypugaea</i>	Western burrowing owl	SC		Variable in open (may occur in human developed areas), well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals.	Occurs
Bird	<i>Falco peregrinus anatum</i>	American Peregrine falcon	SC	WSCA	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance.	Occurs
Mammal	<i>Leptonycteris curasoae yerbabuenae</i>	Lesser long-nosed bat	LE	WSCA	Desert scrub habitat with agave and columnar cacti present as food plants.	May Occur
Mammal	<i>Myotis velifer</i>	Cave myotis	SC		Desertscrub of creosote, brittlebush, palo verde, and cacti. Roost in caves, tunnels, mineshafts, under bridges, and sometimes in buildings within a few miles of water.	May Occur
Plant	<i>Coryphantha scheeri var. robustispina</i>	Pima pineapple cactus	LE		Sonoran desertscrub or semi-desert grassland communities.	Potential to Occur

SC = Species of Concern, LE = List endangered, WSCA = Wildlife of Special Concern in Arizona.

Sources: Personal communication, Lisa 2007; personal communication, Snow 2004; AZGF 2004

## 3.4 AIR QUALITY

### 3.4.1 Definition of the Resource

This section discusses air quality considerations and conditions in the area around Davis-Monthan AFB in Pima County, Arizona. It addresses air quality standards and describes current air quality conditions in the region.

**Federal Air Quality Standards.** Air quality is determined by the type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the CAA, the USEPA has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety.

These federal standards, known as the NAAQS, represent the maximum allowable atmospheric concentrations and were developed for seven “criteria” pollutants: O<sub>3</sub>, NO<sub>2</sub>, CO, SO<sub>2</sub>, particulate matter less than or equal to 10 micrometers in diameter (PM<sub>10</sub>), particulate matter less than or equal to 2.5 micrometers in diameter (PM<sub>2.5</sub>), and Pb. Because volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>) are precursors to the formation of O<sub>3</sub> in the atmosphere, control of these pollutants is the primary method of reducing O<sub>3</sub> concentrations in the atmosphere. The NAAQS are defined in terms of concentration (e.g., parts per million [ppm] or micrograms per cubic meter [µg/m<sup>3</sup>]) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects and may not be exceeded more than once a year. Long-term standards (annual periods) were established for pollutants with chronic health effects and may never be exceeded.

Based on measured ambient criteria pollutant data, the USEPA designates areas of the U.S. as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (nonattainment). Upon achieving attainment from a nonattainment designation, areas are then considered to be a “maintenance” area for a period of 10 or more years. Areas are designated as unclassifiable for a pollutant when there is insufficient ambient air quality data for the USEPA to form a basis of attainment status. For the purpose of applying air quality regulations, unclassifiable areas are treated the same as areas in attainment of the NAAQS.

**State Air Quality Standards.** Under the CAA, state and local agencies may establish ambient air quality standards (AAQS) and regulations of their own, provided that these are at least as stringent as the federal requirements. For all criteria pollutants, Arizona has adopted the NAAQS. A summary of the federal and Arizona AAQS that apply to the proposed project area is presented in Table 3.4-1.

**Table 3.4-1. Arizona and Federal Ambient Air Quality Standards**

<i>Air Pollutant</i>	<i>Averaging Time</i>	<i>Arizona AAQS</i>	<b>FEDERAL (NAAQS)</b>	
			<i>Primary</i>	<i>Secondary</i>
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm 35 ppm	9 ppm 35 ppm	--- ---
Nitrogen Dioxide (NO <sub>2</sub> )	AAM	0.053 ppm	0.053 ppm	0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	AAM 24-hour 3-hour	0.030 ppm 0.14 ppm 0.50 ppm	0.030 ppm 0.14 ppm ---	--- --- 0.50 ppm
Particulate Matter (PM <sub>10</sub> ) <sup>1</sup>	AAM 24-hr	50 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>	--- 150 µg/m <sup>3</sup>	--- 150 µg/m <sup>3</sup>
Particulate Matter (PM <sub>2.5</sub> ) <sup>2</sup>	AAM 24-hour	15 µg/m <sup>3</sup> 35 µg/m <sup>3</sup>	15 µg/m <sup>3</sup> 35 µg/m <sup>3</sup>	15 µg/m <sup>3</sup> 35 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> ) <sup>3</sup>	1-hour 8-hour	--- 0.08 ppm	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm
Lead (Pb) and Lead Compounds	Calendar Quarter	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

Notes: AAM = Annual Arithmetic Mean; ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

1. In 2006, the federal annual PM<sub>10</sub> standard of 50 µg/m<sup>3</sup> was revoked; Arizona Administrative Code 17.08 has kept the 50 µg/m<sup>3</sup> for PM<sub>10</sub> standard.
2. In 2006, the PM<sub>2.5</sub> standard for the 24-hour averaging time was changed from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>.
3. The USEPA replaced the 1-hour O<sub>3</sub> standard with the 8-hour O<sub>3</sub> standard in June 2005. The 1-hour standard still applies in a few areas; however, Tucson, Arizona is not one of them.

Sources: 40 Code of Federal Regulations 50; Arizona Administrative Code Chapter 17.08.

**State Implementation Plan.** For non-attainment regions, states are required to develop a SIP designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS by specific deadlines. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state.

**Prevention of Significant Deterioration (PSD).** Section 162 of the CAA further established the goal of PSD of air quality in all international parks, national parks which exceeded 6,000 acres, and national wilderness areas and memorial parks which exceeded 5,000 acres if these areas were in existence on August 7, 1977. These areas were defined as mandatory Class I areas, while all other attainment or unclassifiable areas were defined as Class II areas. Under CAA Section 164, states or tribal nations, in addition to the federal government, have the authority to redesignate certain areas as (non-mandatory) PSD Class I areas (e.g., a national park or national wilderness area established after August 7, 1977) which exceeds 10,000 acres. PSD Class I areas are areas where any appreciable deterioration of air quality is considered significant. Class II areas are those where moderate, well-controlled growth could be permitted. Class III areas are those designated by the governor of a state as requiring less protection than Class II areas. No Class III areas have yet been so designated. The PSD requirements affect construction of new



major stationary sources in the PSD Class I, II, and III areas and are a pre-construction permitting system.

**Visibility.** CAA Section 169(a) established the additional goal of prevention of further visibility impairment in PSD Class I areas. Visibility impairment is defined as a reduction in the visual range and atmospheric discoloration. Determination of the significance of an activity on visibility in a PSD Class I area is typically associated with evaluation of stationary source contributions. The USEPA is implementing a Regional Haze rule for PSD Class I areas that will address contributions from mobile sources and pollution transported from other states or regions. Emission levels are used to qualitatively assess potential impairment to visibility in PSD Class I areas. Decreased visibility may potentially result from elevated concentrations of PM<sub>10</sub> and SO<sub>2</sub> in the lower atmosphere.

**General Conformity.** CAA Section 176(c), General Conformity, established certain statutory requirements for federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with each state's SIP for attainment of the NAAQS. Federal activities must not:

- (a) cause or contribute to any new violation;
- (b) increase the frequency or severity of any existing violation; or
- (c) delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases.

**Stationary Source Operating Permits.** In Pima County, the Pima County Department of Environmental Quality regulates air quality and processes permit applications for stationary air pollution sources. Activity permits must be obtained for various construction, demolition, earthmoving, and land clearing activities. Title V of the CAA Amendments of 1990 requires states to issue Federal Operating Permits for major stationary sources. A major stationary source in Pima County is a facility (i.e., plant, base, or activity) that emits more than 100 tons per year (TPY) of any criteria air pollutant, 10 TPY of a hazardous air pollutant, or 25 TPY of any combination of hazardous air pollutants (40 CFR 93; USEPA 2007).

### 3.4.2 Existing Conditions

**Regional Air Quality.** Federal regulations at 40 CFR 81 delineate certain air quality control regions (AQCRs), which were originally designated based on population and topographic criteria closely approximating each air basin. The potential influence of emissions on regional air quality would typically be confined to the air basin in which the emissions occur. Therefore, the ROI for air quality for the Proposed Action is the Pima Intrastate AQCR (AQCR 15), which includes Pima County, Arizona (40 CFR 81.269).

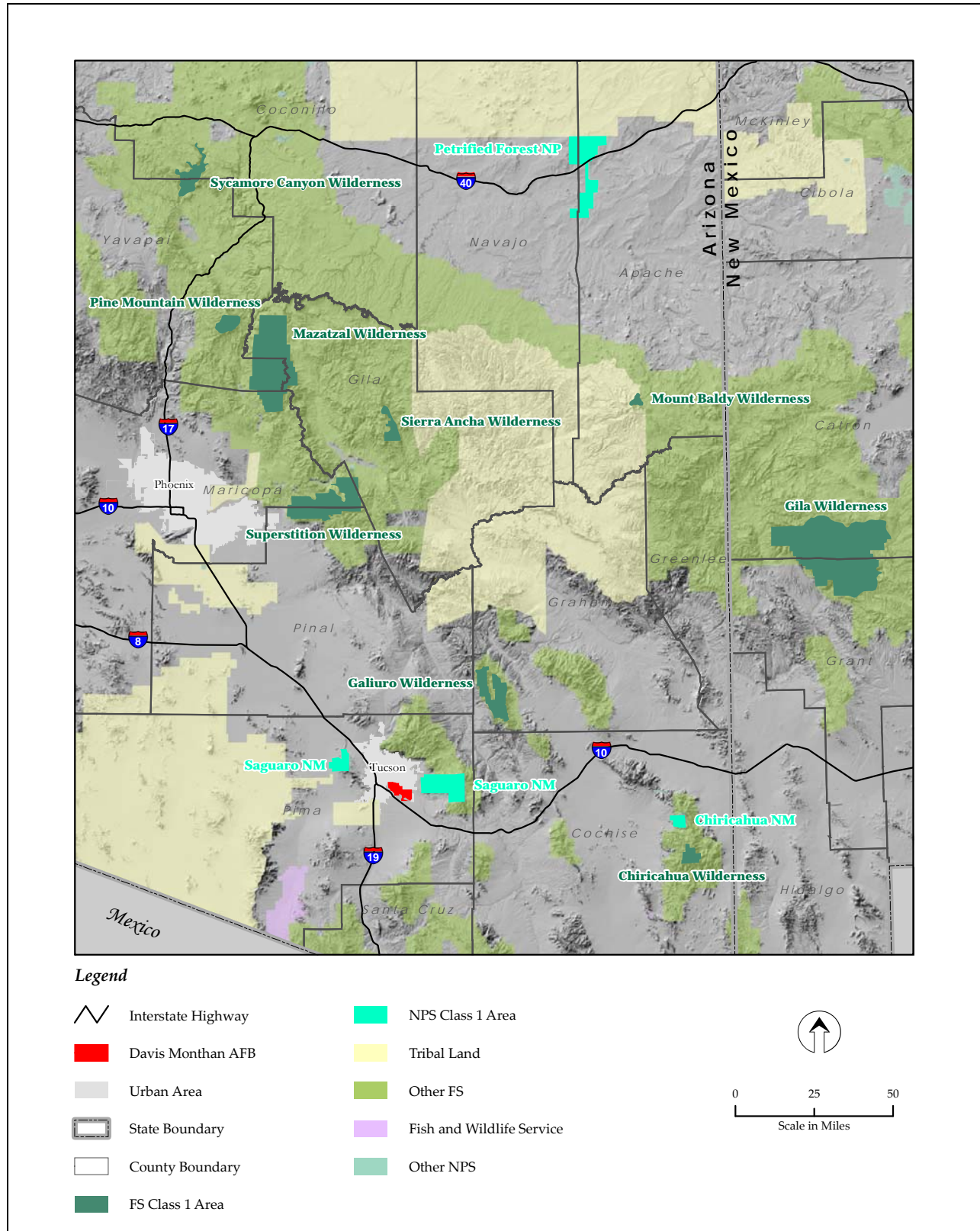
**Attainment Status.** A review of federally published attainment status for Tucson, Arizona in 40 CFR 81.303 indicated that Davis-Monthan AFB is located within a region designated as in attainment (i.e., meeting national standards) for all criteria pollutants including CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, O<sub>3</sub>, and Pb. The Tucson metropolitan area was designated as in attainment for CO as of July 10, 2000 and is currently covered by a 10-year maintenance plan for CO (65 FR 36353, June 8, 2000); therefore, although the county is designated as in attainment for CO, conformity requirements apply for CO due to its maintenance status.

In 1999, Tucson violated the 24-hour PM<sub>10</sub> NAAQS due to high wind natural events and an extended period of low rainfall. As a result, the Pima County Department of Environmental Quality adopted a Natural Events Action Plan (NEAP) in 2002 to protect the public from airborne fine dust particles on days with high ambient levels of PM<sub>10</sub> with increased enforcement and educational measures. Implementing the NEAP avoided possible redesignation of the Tucson area from attainment to nonattainment with respect to PM<sub>10</sub>. No PM<sub>10</sub> exceedances were recorded in 2006 (Pima County Department of Environmental Quality 2007).

**PSD Class I Areas.** Mandatory PSD Class I areas for the State of Arizona are listed under 40 CFR 81.403. The nearest PSD Class I area is the Saguaro National Park East which is 14 miles from Davis-Monthan AFB. The West Unit of Saguaro National Park is 21 miles west-northwest of the Base. Other nearby PSD class I areas include the Galiuro Wilderness, 41 miles northeast of the Base; Chiricahua National Monument, 88 miles east; the Chiricahua Wilderness, 93 miles east-southeast; the Superstition Wilderness, 95 miles north; the Sierra Ancha Wilderness, 116 miles north; the Mazatzal Wilderness, 142 miles north; the Mount Baldy Wilderness, 145 miles north-northeast; the Gila Wilderness in New Mexico, 157 miles east; and the Pine Mountain Wilderness, 159 miles north (National Park Service 2004, n.d.a, n.d.b, n.d.c) (Figure 3.4-1).

**Climate.** The climate of Pima County and southeastern Arizona varies with elevation; the mountain ranges experience higher amounts of precipitation and lower temperatures than the low desert regions. Average maximum and minimum temperatures at the Tucson International Airport (elevation 2,560 feet) are 82 degrees Fahrenheit (°F) and 55°F, compared with 59°F and 34°F at the Palisades Ranger Station (elevation 8,000 feet) 40 miles away in the Coronado National Forest. Average annual precipitation is 12 inches in Tucson and 31 inches at the higher elevations. Average snowfall is slightly more than one inch per year in Tucson and 78 inches per year at the ranger station (Arizona Board of Regents 2001).

In general, the hottest period in Tucson is from May to September, with daytime temperatures often exceeding 100°F. Nighttime temperatures are typically 30 degrees cooler. Winters are mild with warm days and cool nights, occasionally falling below freezing. The majority of the rain falls during two rainy seasons: July through mid-September and December through mid-March. The summer storms are often torrential, with lightning strikes and occasional flash flooding, particularly during the summer.



**Figure 3.4-1. Prevention of Significant Deterioration (PSD)  
Class I Areas Near Davis-Monthan AFB, Arizona**

Tucson experiences an average of 193 clear days, 91 partly cloudy days, and 81 cloudy days (53 of the 81 cloudy days are also considered rainy days) per year. Temperatures above 90°F occur during an average of 143 days per year; sub-freezing temperatures are experienced an average of 18 days per year. Wind is typically from the southeast year-round, at an average speed of 8.3 miles per hour (Friends of Saguaro National Park 2007, Western Regional Climate Center 2004).

**Current Emissions.** Stationary sources of air emissions at Davis-Monthan AFB include mobile sources, non-road engines, and stationary sources. Mobile sources include aircraft, highway vehicles, and off-road vehicles. Non-road engines include aerospace ground equipment, portable generators, welders, and grounds maintenance equipment. Because these mobile and non-road sources are not regulated by the state of Arizona, they are not included in the base-wide emissions inventory. Stationary sources at Davis-Monthan include jet engine test cells, fuel storage and distribution equipment, corrosion control facilities, fuel cell maintenance, solvent cleaning, abrasive blasting, boilers and heaters, emergency generators, and gasoline service stations. In the following table, particulate matter includes PM<sub>10</sub> as a component of the total; NO<sub>x</sub> includes NO<sub>2</sub> and other nitrogen compounds; and sulfur oxides (SO<sub>x</sub>) includes SO<sub>2</sub> and other sulfur compounds. Because VOCs and NO<sub>x</sub> are precursors to the formation of O<sub>3</sub> in the atmosphere, control of these pollutants is the primary method of reducing O<sub>3</sub> concentrations in the atmosphere. Table 3.4-2 summarizes the results of an emissions inventory for stationary sources at Davis-Monthan AFB for calendar year 2005 (Davis-Monthan 2006b).

**Table 3.4-2. Baseline Emissions at Davis-Monthan AFB, Calendar Year 2005**

	ANNUAL EMISSIONS (TONS PER YEAR)				
	CO	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>
Stationary Sources	38.6	16.0	37.3	2.5	10.8

Note: PM<sub>2.5</sub> emissions were not estimated in the 2005 Davis-Monthan air emissions inventory.

Source: Davis-Monthan AFB 2006b

Davis-Monthan AFB operates under Operating Permit #1701, which contains voluntary limits on activity emissions for all major types of hazardous air pollutants on the Base. The permit allows Davis-Monthan AFB to be categorized as a 'Synthetic Minor' source of hazardous air pollutants, and the emission thresholds in the permit allow the Base to avoid the operational constraints and emission control requirements associated with the federal Aerospace National Emission Standards for Hazardous Air Pollutants (NESHAPs). Since the permit was issued in 1998, the Base hazardous air pollutant emissions have been less than half of the permitted levels, leaving substantial operating flexibility under the thresholds for future changes in mission and increases in activities that may emit air pollutants (Davis-Monthan 2006b).

**Regional Air Emissions.** The previous section lists on-base emissions for Davis-Monthan AFB. The NEPA process, however, must also consider impacts from mobile sources and indirect emissions related to the project, some of which (for example, commuting of new employees to and from the facility) occur outside of the installation. For comparison purposes, Table 3.4-3 lists county-wide emissions for Pima County, as compiled by the USEPA in its National Emissions Inventory (NEI), which was last updated in 1999 (USEPA 2003). The 1999 NEI

contains estimates of annual emissions for stationary and mobile sources of air pollutants in each country on an annual basis.

**Table 3.4-3. Air Emissions Inventory Pima County, Arizona  
Calendar Year 1999**

	POLLUTANTS (IN TONS PER YEAR)				
	CO	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	VOC
<b>Pima County, AZ</b>					
Stationary Sources	132,219	4,207	18,853	30,515	25,207
Mobile Sources	141,992	770	19,642	566	14,091

Source: USEPA 2003

### 3.5 NOISE

#### 3.5.1 Definition of the Resource

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive. It may be stationary or transient. Stationary sources are normally related to specific land uses, e.g., housing tracts or industrial plants. Transient noise sources move through the environment, either along established paths (i.e., highways, railroads, and airports), or randomly. There is wide diversity in responses to noise that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source (e.g., an aircraft) and the receptor (i.e., a person or animal).

The physical characteristics of noise, or sound, include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the eardrum. This may be likened to the ripples in water that would be produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of these pressure waves increase, and the ear senses louder noise. The unit used to measure the intensity of sound is the decibel (dB). Sound intensity varies widely (from a soft whisper to a jet engine) and is measured on a logarithmic scale to accommodate this wide range. The logarithm, and its use, is nothing more than a mathematical tool that simplifies dealing with very large and very small numbers. For example, the logarithm of the number 1,000,000 is 6, and the logarithm of the number 0.000001 is -6 (minus 6). Obviously, as more zeros are added before or after the decimal point, converting these numbers to their logarithms greatly simplifies calculations that use these numbers. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness."

The term most often used when measuring the magnitude of sound is *sound pressure level*. Sound pressure level can vary over an extremely large range of amplitudes. It is a relative

quantity, in that it is a ratio between the actual sound pressure and a fixed reference pressure, which is normally the threshold of human hearing. Table 3.5-1 presents the subjective effect of changes in sound pressure level.

**Table 3.5-1. Perceived Changes in Noise as Sound Pressure Changes**

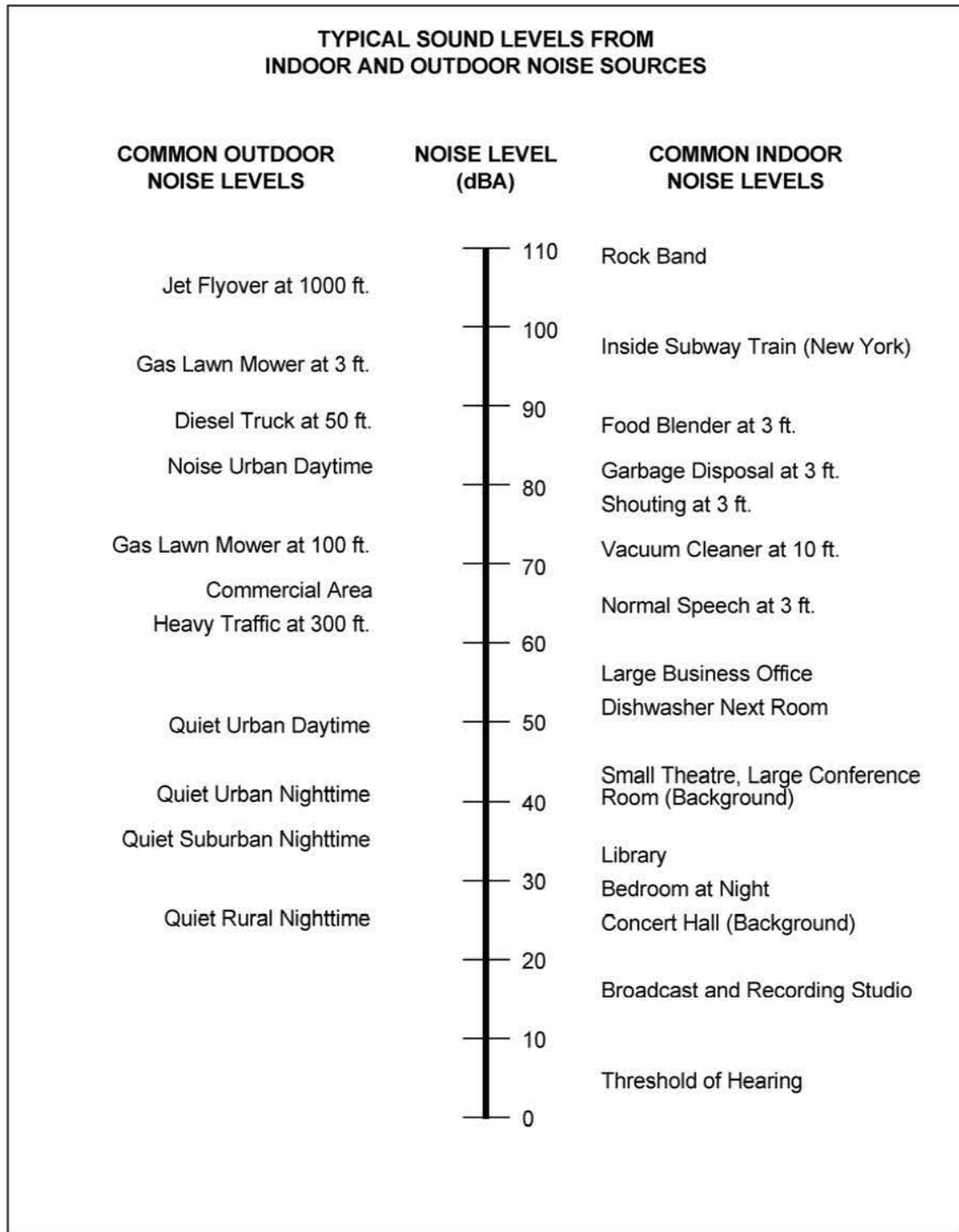
<i>Change in Sound Level (dB)</i>	<b>CHANGE IN POWER</b>		<i>Change in Apparent Loudness</i>
	<i>Decrease</i>	<i>Increase</i>	
3	1/2	2	Just perceptible
5	1/3	3	Clearly noticeable
10	1/10	10	Half or twice as loud
20	1/100	100	Much quieter or louder

Source: American National Standards Institute (ANSI) 1983

Different sounds contain different frequencies. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term “A-weighted” refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network has been established by the ANSI (ANSI 1983). The dBA noise level has been found to correlate well with people’s judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. Figure 3.5-1 shows the typical dBA sound levels for various sources.

The word “metric” is used to describe a standard of measurement. As used in environmental noise analysis, there are many different types of noise metrics. Each metric has a different physical meaning or interpretation and each metric was developed by researchers attempting to represent the effects of environmental noise.

The day-night average sound level (DNL) was developed to evaluate the total daily community noise environment. DNL is the average A-weighted acoustical energy for a 24-hour period with a 10 dB upward adjustment added to the nighttime levels (10:00 p.m. to 7:00 a.m.). This adjustment is an effort to account for the increased sensitivity of most people to noise in the quiet nighttime hours. DNL has been adopted by federal agencies including the USEPA, the Federal Aviation Administration (FAA), and the Department of Housing and Urban Development as the accepted unit for quantifying human annoyance to general environmental noise.



Source: Harris 1991

**Figure 3.5-1. Typical Sound Levels from Indoor and Outdoor Noise Sources**

### 3.5.2 Existing Conditions

Noise associated with activities at Davis-Monthan AFB is characteristic of that associated with most USAF installations with a flying mission. During periods of no aircraft activity, noise associated with Base operations results primarily from maintenance and shop activities, ground traffic movement, occasional construction, and similar sources. The resultant noise is almost entirely restricted to the Base itself and is comparable to that which might occur in adjacent community areas. Due to airfield operations, existing noise levels are typical of an urban residential area near a major airport.

Land use guidelines identified by the Federal Interagency Committee on Urban Noise (FICUN) are used to determine compatible levels of noise exposure for various types of land use surrounding airports (FICUN 1980); 65 to greater than 85 dB (DNL) noise contours are frequently used to help determine compatibility of aircraft operations with local land use. Figure 3.5-2 depicts the baseline DNL 65 to 85 dB noise contours in 5 dB increments surrounding the Davis-Monthan AFB airfield. Table 3.5-2 presents the baseline land acreage exposed to noise levels greater than 65 dB (DNL).

**Table 3.5-2. Noise Contour Acreage, Baseline Conditions**

<i>Noise Contour (DNL)</i>	<i>Acres</i>
65 - 70 dB	3,506
70 - 75 dB	1,293
75 - 80 dB	642
80+ dB	564
<b>Total</b>	<b>6,005</b>

Source: ACC 2002

Much of the Base administrative, industrial, and unaccompanied housing areas are within the DNL 65 dB noise level contour. Although not prohibited, residential and community areas are discouraged from being sited inside the DNL 65 dB noise contour. Sound attenuation is required for administrative facilities exposed to the DNL 70 dB noise contour, which includes areas mostly along the flight line (Davis-Monthan AFB 2006a).

## 3.6 LAND USE AND VISUAL RESOURCES

### 3.6.1 Definition of the Resource

Land use is the classification of either natural or human-modified activities occurring at a given location. Natural land use includes rangeland and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, airfield, recreational, and other developed areas. Land use is regulated by management plans, policies, and regulations determining the type and extent of land use allowable in specific areas and protection specially designated for environmentally sensitive areas.



Visual resources consist of the natural elements (e.g., vegetation, waterbodies, mountains) and the manmade structures which typically make up the viewing environment. Visual resources are reviewed to determine the compatibility of construction projects within a surrounding environment.

The ROI for land use and visual resources consists of all the lands of Davis-Monthan AFB, as well as adjacent portions of Tucson and Pima County.

## 3.6.2 Existing Conditions

### 3.6.2.1 LAND USE

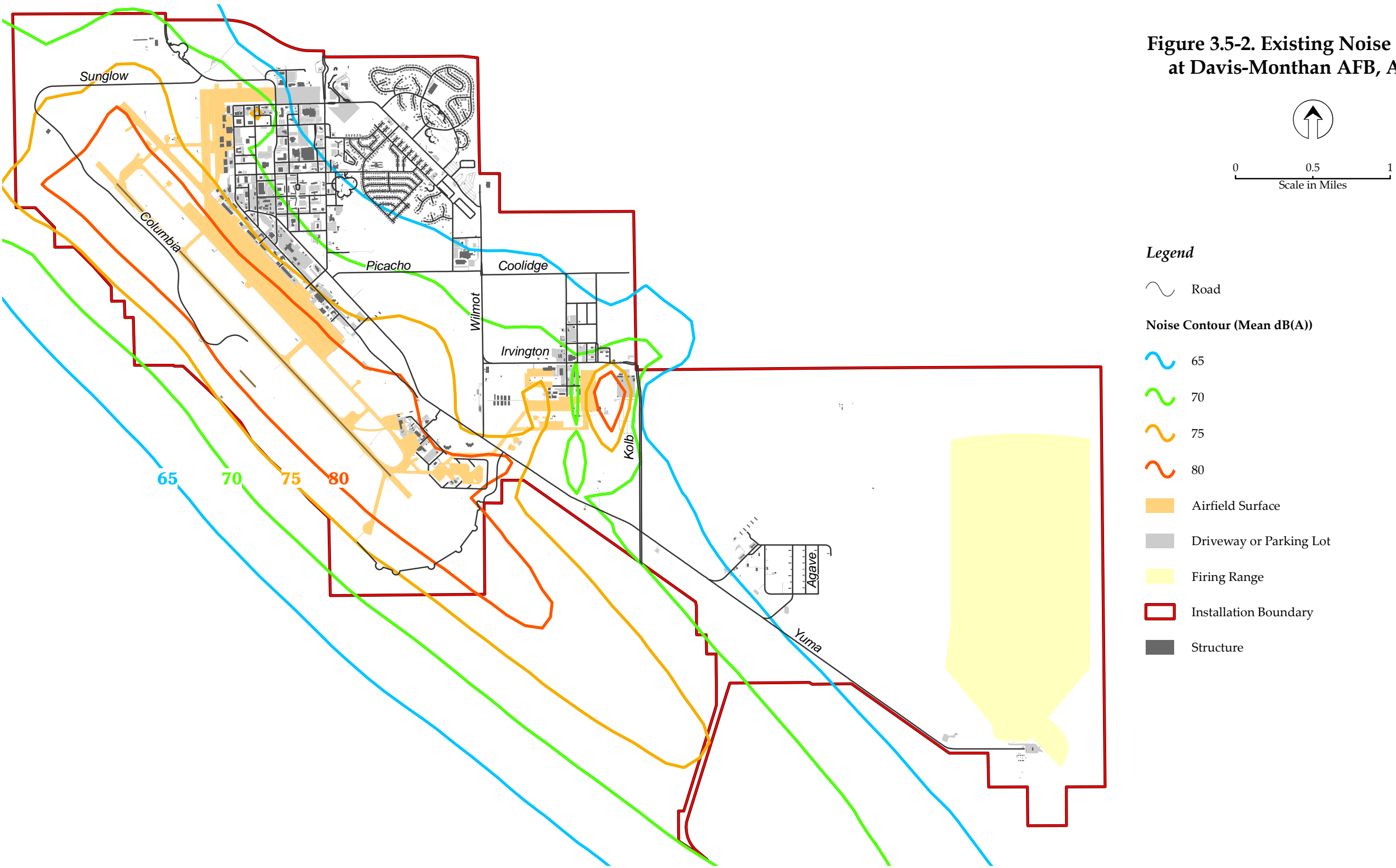
Davis-Monthan AFB occupies 10,613 acres located mostly within the city limits of the City of Tucson. A small portion of the southern end of the Base is located within unincorporated Pima County. Several entities, including the City of Tucson, the State of Arizona, the federal government, as well as private landowners, have ownership of the lands comprising the Base.

There are 12 land use categories at Davis-Monthan AFB. These are listed in Table 3.6-1 and are depicted in Figure 3.6-1. As shown in Table 3.6-1, Open Space is the most prevalent land use type on Base, followed by Industrial and Airfield uses, respectively. Although land uses within the Base are considered to be generally compatible, most of the Base's existing land use pattern was developed during and shortly after World War II, prior to the establishment of current USAF guidelines for airfield land use patterns. As such, some anomalies and conflicts with land use patterns exist at Davis-Monthan AFB. Primary on-base conflicts are associated with airfield related uses such as structures that are located within airfield CZs (Davis-Monthan AFB 2006a).

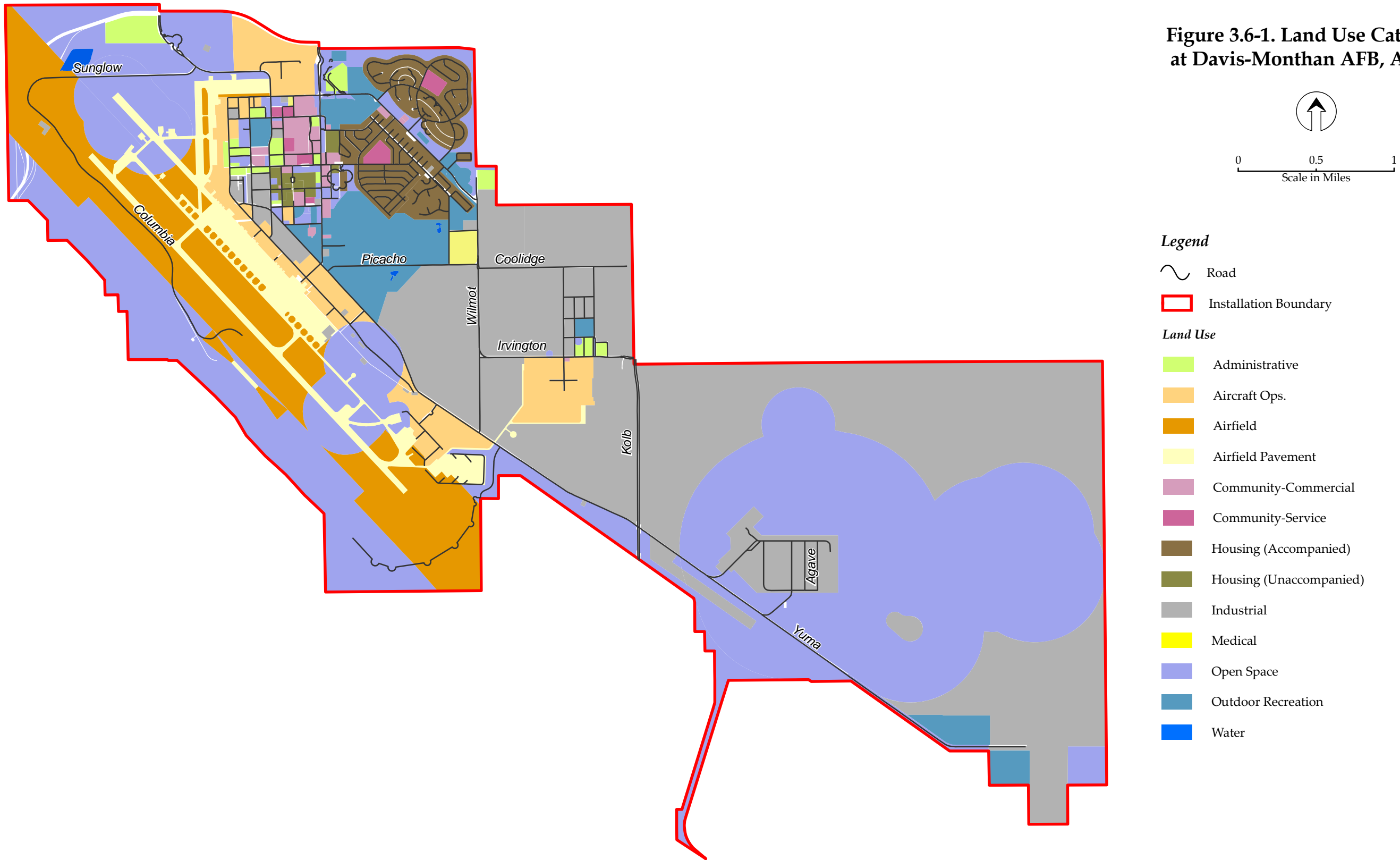
**Table 3.6-1. Land Use Categories at Davis-Monthan AFB**

<i>Land Use Category</i>	<i>Acres</i>	<i>Example</i>
Airfield	1,453	Runway, overruns, taxiways, aprons
Aircraft Operations and Maintenance	444	Hangars, maintenance shops, aircrew facilities, etc.
Industrial	3,470	Supply, Civil Engineering facilities, vehicle maintenance facilities, etc.
Administrative	85	Headquarters facilities, Base support, security, etc.
Community Commercial	68	AAFES, commissary, credit union, dining hall, etc.
Community Services	31	Schools, post office, library, chapel, etc.
Medical	31	Health care center, dental clinic, veterinarian facility, etc.
Accompanied Housing	291	Family housing, temporary housing, trailer courts
Unaccompanied Housing	30	Dormitories, Visiting Officers Quarters, Visiting Airman Quarters
Outdoor Recreation	332	Golf course, swimming pool, playing fields, etc.
Open Space	4,209	Conservation areas, safety clearance zones, etc.
Water	13	Storm drainage collection ponds

Source: Davis-Monthan AFB 2006a



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Land use policies associated with the airfield at Davis-Monthan AFB include the following (Davis-Monthan AFB 2006a):

- New structures at Davis-Monthan AFB cannot be sited within the CZ,
- Structures within 1,000 feet of the centerline of the runway (lateral CZ) cannot be above ground level,
- Structures cannot be located within 200 feet of the centerline on taxiways, and
- Structures that are not related to flight operations cannot be located within 125 feet of the edge of the aircraft parking apron.

Tucson is one of the most rapidly growing metropolitan areas in the U.S. When originally constructed, the Base was located several miles from the Tucson urbanized area. However, development associated with the city has expanded in recent decades to surround Davis-Monthan AFB on most sides, with the most highly developed areas located immediately north and west of the Base boundary. Land use adjacent to the north side of the Base is primarily suburban residential, with a mix of office, retail, and business services. Land use to the east and south of the Base comprises primarily undeveloped rangeland, along with pockets of planned mixed uses including light industrial, scientific and research, and single-family residential subdivisions. Land use to the west comprises residential, office retail, business services, and light industrial. Encroachment is a primary land use concern at the Base as 3,139 acres outside of the Base are considered to be affected by Base operations, with 471 acres considered to be incompatible with the Base's aircraft operations. The primary conflicts between Base operations and off-base land uses are safety risks related to military overflights and noise exposure (Davis-Monthan AFB 2006a, ACC 2002, Arizona Department of Commerce 2004).

In order to address land use conflicts related to the encroachment of urban development adjacent to Davis-Monthan AFB, the *Davis-Monthan Air Force Base/Tucson/Pima County Joint Land Use Study* was completed in February of 2004. This study was completed as a collaborative effort between the Base and local agencies including the City of Tucson and Pima County, which have jurisdiction over land use in the vicinity of the Base. The purpose of this study is to protect the Base's ability to continue its military mission (and the associated economic benefits derived by the local community) from surrounding development, while continuing to increase economic diversity in the area surrounding the Base in a manner that is consistent with the Base's mission. Among the primary goals of this study are:

- Assess existing plans and studies to gather data and data needs, and identify areas of consistency and conflict in these documents as they relate to addressing encroachment of the Base;
- Determine which land uses are compatible, acceptable, and feasible with the constraints presented by the Base, including high-noise zones, accident potential zones, etc.; and
- Prepare an implementation plan to prevent urban encroachment that impacts the Base's mission (Arizona Department of Commerce 2004).

The Pima County Planning and Zoning Commission passed a major plan amendment in 2004 to implement the Joint Land Use Study and associated changes to zoning and planned land uses in the vicinity of the Base. The Tucson Working Group and Policy Advisory Committee and the Davis-Monthan AFB – Tucson Joint Land Use Study Advisory Committee identify resolutions to possible land use compatibility issues associated with Davis-Monthan AFB. Residents, landowners, business owners, and developers, along with representatives from the DoD Office of Economic Adjustment, the Arizona Department of Commerce, the Arizona State Land Department, the University of Arizona, Davis-Monthan Air Force Base, Pima County, the City of Tucson, and the Tucson Chamber of Commerce meet to discuss compatible noise and safety land use criteria in the vicinity of Davis-Monthan Air Force Base.

### **3.6.2.2 VISUAL RESOURCES**

The visual character of Davis-Monthan AFB features a mixture of architectural styles and varying degrees of landscaping, with little uniformity. The varying architectural styles of buildings on Base include split-block, southwestern, and utilitarian and the style generally depends on when the building was constructed. A common theme of building exteriors throughout the Base is sand-color paint accented with darker shades. Base landscaping ranges from areas that are highly landscaped to areas that generally lack any landscaping.

## **3.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

### **3.7.1 Definition of the Resource**

Socioeconomic resources are defined as the basic attributes associated with the human environment, particularly population and economic activity. Population is described by the change in magnitude, characteristics, and distribution of people. Economic activity is typically composed of employment distribution, personal income, and business growth. Any impact on these two fundamental socioeconomic indicators can have ramifications for secondary considerations, like housing availability and public service provision.

To comply with NEPA, the planning and decision making process for actions proposed by federal agencies involves a study of other relevant environmental statutes and regulations, including EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The essential purpose of EO 12898 is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, tribal, and local programs and policies.

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that federal agency policy, programs, activities, and standards address environmental risks and safety risks to children. This section

identifies the distribution of children and locations where the number of children in the affected area may be proportionately high (e.g., schools, child care centers, etc.).

The ROI for socioeconomics for this analysis includes the Tucson Metropolitan Statistical Area (MSA), which is essentially Pima County. Socioeconomic data are presented for the ROI and the Tohono O’odham Reservation, where information is available. Baseline trends for this region are analyzed in comparison to those at the state and national scale. Consequently, various data in this section are presented for the ROI, county, state, and national levels. Existing conditions for environmental justice were analyzed through demographic characterization, particularly ethnicity and poverty status for the ROI.

### 3.7.2 Existing Conditions

#### 3.7.2.1 POPULATION AND EMPLOYMENT

Table 3.7-1 compares the differences in population in the ROI between the 1990 Census and the 2000 Census. This comparison reveals that the state of Arizona experienced extraordinary growth, increasing forty percent over the last decade. All areas within Arizona exceeded the national average.

**Table 3.7-1. Population in the ROI**

<i>Area</i>	<i>1990 Census Population</i>	<i>2000 Census Population</i>	<i>Percent Change</i>
Tohono O’odham <sup>1</sup>	8,730	10,683	22.4
Tucson MSA	666,880	843,746	26.5
Arizona	3,665,228	5,130,632	40.0
United States	248,709,873	281,421,906	13.2

Note: 1. In the 1990 Census, the Tohono O’odham Reservation was identified as the Papago Reservation.

Sources: U.S. Census Bureau (USCB) 1990, 2000a, 2001a, 2001b, 2001c, 2001d

According to the 2000 Census, the educational, health, and social services industry employed the largest percent of the civilian population over 16 years of age in the U.S. (19.9), Arizona (18.0), Tucson MSA (22.5), and the Tohono O’odham Reservation (30.0). In each of these areas, commercial employees were the most common, while government employees constituted 14.6, 15.2, 18.7, and 46.9 percent of the workforce, respectively (USCB 2000b).

The military population at Davis-Monthan AFB is approximately 6,200 personnel. Davis-Monthan AFB employs slightly more than 2,000 civilian workers. Approximately 8,900 military dependents and 14,000 military retirees and survivors in the Tucson urban area continue to be supported by the Base. As the fourth largest employer in the Tucson area (Arizona Daily Star 2004), Davis-Monthan AFB has an annual regional economic impact of over \$1.1 billion (Davis-Monthan AFB 2006a), which includes not only payroll and pensions, but also materials and construction expenditures.



Table 3.7-2 compares the per capita income (PCI) in the ROI with the state and the U.S. Tucson and the state of Arizona are comparable to the national mean; however, the Tohono O’odham Reservation is substantially lower than the PCI of the nation or the surrounding areas (USCB 2000a).

**Table 3.7-2. Per Capita Income**

<i>Geographic area</i>	<i>Per Capita Income, In Dollars, 2000</i>
United States	21,587
Arizona	20,275
Tohono O’odham	6,998
Tucson MSA	19,785

Source: USCB 2000a

### **3.7.2.2 ENVIRONMENTAL JUSTICE**

In order to present a thorough environmental justice evaluation, particular attention is given to the distribution of race, poverty, and legal (under age 18) status in the ROI.

#### **DEMOGRAPHICS**

The comparative statistics for race and hispanic identification for the ROI are presented in Table 3.7-3. Tucson MSA and Arizona have over twice the proportion of the population identified as Hispanic or Latino than the nation. Persons identifying themselves as white constitute the same percentage of the population at the national, state, and metropolitan levels. However, in minority groups, both Arizona and Tucson MSA have higher proportions of “some other race” and “American Indian or Alaska Native” groups. The Tohono O’odham Reservation is an area of concentrated “American Indian or Alaska Native” persons, with over 90 percent of the population belonging to that group.

#### **POVERTY AND LEGAL STATUS**

The geographic comparison areas have relatively the same percent of persons under age 18, as seen in Table 3.7-4, with the exception of the Tohono O’odham Reservation, where over a third of the population was under the age of 18 during the 2000 Census. Poverty rates for both individuals and persons under age 18 are greater than the national level (Table 3.7-5). Approximately half the population on the Tohono O’odham Reservation for both individuals and persons under age 18 are below the poverty level. Poverty in 2000 was defined as an income of \$8,794 in a household of one individual, or \$17,603 for a family of four (USCB n.d.). Consequently, the ROI has higher poverty rates than the national average but, with the exception of the Tohono O’odham Reservation, is composed of comparable numbers of persons under age 18.

**Table 3.7-3. Profile of Demographic Characteristics, Year 2000**

Geographic Area	RACE								Hispanic or Latino (of any race)
	ONE RACE							Two or more races	
	One race	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race		
U.S.	274,595,678	211,460,626	34,658,190	2,475,956	10,242,998	398,835	15,359,073	6,826,228	35,305,818
(%)	97.6	75.1	12.3	0.9	3.6	0.1	5.5	2.4	12.5
Arizona	4,984,106	3,873,611	158,873	255,879	92,236	6,733	596,774	146,526	1,295,617
(%)	97.1	75.5	3.1	5.0	1.8	0.1	11.6	2.9	25.3
Tucson MSA	816,677	633,387	25,594	27,178	17,213	1,088	112,217	27,069	247,578
(%)	96.8	75.1	3	3.2	2	0.1	13.3	3.2	29.3
Tohono O'odham	10,683	873	11	9,718	17	10	54	104	761
(%)	99.0	8.1	0.1	90.1	0.2	0.1	0.5	1.0	7.1

Note: Percent of total population (row 2) that each group represents is given in parenthesis. Only the percentages under the 'Race' heading will total 100%. Hispanic or Latino can be part of any race, and therefore the percent of Hispanic or Latino is percent of total population.

Source: USCB 2000a

**Table 3.7-4. Persons Under Age 18 in the ROI**

<i>Geographic area</i>	<i>Percent Under Age 18, 2000</i>
U.S.	25.7
Arizona	26.6
Tucson MSA	24.6
Tohono O'odham Reservation and Off-Reservation Trust Land, Arizona	37.5

Source: USCB 2000c

**Table 3.7-5. Individuals in Poverty in the ROI, Year 2000**

<i>Geographic area</i>	<i>Percent Individuals Below Poverty Level</i>	<i>Percent Persons Under Age 18 Below Poverty Level</i>
U.S.	12.4	16.6
Arizona	13.9	19.3
Tucson MSA	14.7	20.0
Tohono O'odham Reservation and Off-Reservation Trust Land, Arizona	46.4	50.6

Source: USCB 2000c

## **3.8 CULTURAL RESOURCES**

### **3.8.1 Definition of the Resource**

Cultural resources are any prehistoric or historic district, site, or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archaeological resources, historic architectural resources, and traditional resources. Archaeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). Historic architectural resources include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Traditional resources are associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community.

Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources that are either eligible for listing, or listed in, the NRHP. Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional resources identified by American Indian tribes or other groups. In 1999, the DoD promulgated its *American Indian and Alaska Native Policy*, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. The Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the services.

The proposal is to construct a variety of facilities at the Base, and therefore the ROI for cultural resources is Davis-Monthan AFB.

### **3.8.2 Existing Conditions**

#### **3.8.2.1 HISTORICAL SETTING**

The Tucson Basin was likely first inhabited approximately 12,000 years ago when the climate of the American Southwest was cooler and moister than today. Many of the basins were occupied by shallow lakes and wetlands, creating an ideal habitat for birds. The area was host to mammoth, musk ox, giant beaver, mastodon, and sloth. The first human inhabitants are believed to have been big game hunters living around the edges of the wetlands who probably supplemented their diet by gathering various plants (Fagan 1991). As the climate gradually became warmer and drier, the vegetation in the Tucson Basin came to resemble the conditions of today. People continued to rely on hunting a variety of smaller game, but also used a wide range of plant resources as indicated by a marked increase in ground stone processing tools (Davis-Monthan AFB 2004c). Eventually some groups adopted the cultivation of domesticated plants and became less mobile as they relied increasingly on agriculture, particularly maize production. People developed sophisticated irrigation technologies, elaborately decorated ceramics, long distance trade, and solar calendars. They created social and political systems to manage the higher population densities associated with a successful agriculture-based economy. The Hohokam culture of the Tucson Basin had large population centers, agricultural irrigation, ball courts, and a highly developed ceramic tradition. Toward the end of the 1200s, a

major drought occurred throughout the Southwest. By the mid 1400s, all major Hohokam village locations were abandoned, and areas that had seen continuous occupation for 10,000 years were vacated (Davis-Monthan AFB 2004c).

In 1690, Spanish explorers recorded contact with the Piman-speaking peoples of the Gila and Salt Rivers. Spaniards were the first Europeans to make contact with the Tohono O'odham people (formerly known as the Papago). The Jesuits under Father Eusebio Francisco Kino established a series of missions for them in what is now southern Arizona. In the early 1800s, the Tohono O'odham began moving into the Tucson Basin (Davis-Monthan AFB 2004c). Today the Tohono O'odham Nation covers more than 2.8 million acres in the Sonoran Desert, including an Industrial Park near Tucson, and San Xavier Reservation, which contains 71,095 acres just south of the City of Tucson (Intertribal Council of Arizona 2003).

The Pascua Yaqui people originally lived in southern Sonora, Mexico where they farmed and hunted. After the Mexican War of Independence in 1821, the Yaqui gradually moved northward into Arizona. The Yaqui village of Old Pascua was located on the outskirts of Tucson. The village of New Pascua, the seat of Yaqui tribal government, was established after acquisition of reservation land in 1978 (Pascua Yaqui 2007).

The Tucson Presidio was established in 1775, and Tucson became part of Mexico in 1821 (City of Tucson 2007). After the war between the U.S. and Mexico in 1846, most of New Mexico and Arizona was ceded to the U.S. American military forts were established by the early 1860s to defend routes of travel through the region. Cattle ranching began after 1865, with American ranchers establishing extensive operations during the 1880s. Most settlement occurred after 1882 and the arrival of the Southern Pacific Railroad. Ranching continued in importance into the 20th century.

Tucson's aviation history began with the establishment of the nation's first municipally owned airfield in 1919 on what is now the Tucson Rodeo Grounds. Charles Lindbergh flew his *Spirit of St. Louis* to Tucson to dedicate Davis-Monthan Field in 1927 (Davis-Monthan AFB 2007a). The field was named for two World War I pilots killed in aviation accidents. Standard Airlines (now American Airlines) began air service to Tucson in 1928. A year later the Army began negotiations with the city of Tucson regarding the construction of an air base. After nearly 12 years and a series of improvements to the facility, the Base was officially activated in 1941 (Davis-Monthan AFB 2007a). During World War II, Davis-Monthan served as a training location for medium and heavy bomber operations. Because of its arid climate, after World War II Davis-Monthan became the final resting place of decommissioned B-29 (Super Fortress) long-range heavy bombers and C-47 (Gooney Bird) transport aircraft, among others. Today the facility contains more than 5,000 aircraft, providing a stockpile of rare parts for airframes (Davis-Monthan AFB 2007a). Davis-Monthan Field was officially renamed Davis-Monthan Air Force Base in 1948 shortly after it was placed under the jurisdiction of the Strategic Air Command (Davis-Monthan AFB 2007a).

The 162<sup>nd</sup> Fighter Wing of the Arizona ANG was established at Davis-Monthan AFB in 1975. The 162<sup>nd</sup> executes "Operation Snowbird" which affords ANG units from the northern U.S. and high elevation locations to continue training during the winter. Davis-Monthan AFB is also

home to Detachment 1 of the 120<sup>th</sup> Fighter Wing of the Montana ANG (Davis-Monthan AFB 2007a).

Currently, Davis-Monthan AFB occupies approximately 10,613 acres on the southeast side of the city of Tucson. Realignment under ACC in 1992 brought the 12<sup>th</sup> Air Force Headquarters from Texas to Davis-Monthan (Davis-Monthan AFB 2007a). The Base supports operations of the 355 FW flying A-10, OA-10, EC-130H, and EC-130E aircraft, as well as the UH-60 Blackhawk and Pavehawk helicopters, among others.

### **3.8.2.2 IDENTIFIED CULTURAL RESOURCES**

The only NRHP-listed property associated with Davis-Monthan AFB is the Titan II Missile Silo site in Green Valley, Arizona, outside of the present project area (National Register Information System 2007). Once part of a 54-missile network on constant alert throughout the Cold War Period, it is the last remaining Titan facility. The property was included on the NRHP in 1992 and was listed as a National Historic Landmark in 1994 (Davis-Monthan AFB 2004c).

Archaeological surveys at Davis-Monthan AFB began in the 1980s. A survey of 4,675 semi-improved and unimproved acres at the Base took place in 1993 (USACE 1993). The area surveyed represents approximately 45 percent of the total Base acreage and nearly 66 percent of its undeveloped areas. The survey recorded eight archaeological sites and 139 isolated artifacts (USACE 1993). Only one of the recorded sites (AZ BB:13:392) was evaluated as eligible for the NRHP. This site has been excavated completely, and its scientific potential has been exhausted (Davis-Monthan AFB 2004c). None of the sites is within the area of proposed construction.

There are 474 on-base facilities that are 50 years old or older. Of the total, 52 are general use structures. All of these facilities are treated as eligible for inclusion in the NRHP until they are determined ineligible. The remaining 422 are family housing units (Davis-Monthan AFB 2004c) that fall under the Program comment on USAF and Navy Capehart and Wherry Era Housing (ACHP 2004). Three noteworthy facilities on Base are associated with the Cold War Era. These facilities were recommended for stewardship and potential NRHP listing in the Davis-Monthan AFB Cold War Material Culture Inventory (Davis-Monthan AFB 2004c). They include a bomber/tanker alert facility (Building 140, scheduled to be demolished within the next several years), a fighter alert facility (Building 128), and a ground-launched cruise missile headquarters (Building 70). In addition, Building 8030, the Heritage Hangar, was built in 1932 and is the oldest historic building on Davis-Monthan AFB. None of these facilities are within the proposed areas of construction. Table 3.8-1 lists facilities proposed for demolition under the Proposed Action.

No traditional cultural properties or other traditional resources have been identified at Davis-Monthan AFB (USACE 1993, Davis-Monthan AFB 2004c, personal communication, Lisa 2007). Previous contact with the nearby Tohono O'odham Nation and the Pascua Yaqui Tribe and consultation with the SHPO have determined that no consultation is necessary for this Proposed Action (personal communication, Lisa 2007).

**Table 3.8-1. Architectural Resources Proposed for Alteration or Demolition**

<i>Building Number</i>	<i>Project Number</i>	<i>Facility/Building</i>	<i>Proposed Action</i>	<i>Year Built</i>	<i>NRHP Status</i>
133	7, 8	Storage Facility	Demolition	1958	Not eligible
206	10	Pump Station	Demolition	1953	Not eligible
207	10	Pump Station	Demolition	1954	Not eligible
4220	11	Dormitory	Demolition	1968	Not eligible
4320	12	Dormitory Exchange Administration	Demolition	1968	Not eligible
4721	3	CSAR AGE Storage Facility	Addition	1996	Not eligible
4815	3	Storage Facility	Demolition	1985	Not eligible
5247	6	FS Squadron Operations	Addition	1953	Not eligible
5600	9	358 FS Squadron Operations	Addition	1953	Not eligible

Sources: Davis-Monthan AFB 2004; personal communication, Lisa 2007; Davis-Monthan AFB 2007b

## **3.9 SAFETY**

### **3.9.1 Definition of Resource**

This section addresses ground safety involving activities conducted by personnel assigned to Davis-Monthan AFB. Ground safety considers issues involving day-to-day operations and maintenance activities that support unit operations. The ROI for safety in this EA includes Davis-Monthan AFB.

### **3.9.2 Existing Conditions**

#### **3.9.2.1 GROUND SAFETY**

Day-to-day operations and maintenance activities conducted by the 355 FW are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements.

The DoD stipulates certain safety restrictions on land uses in the immediate vicinity of aviation operations around military airfields. These restrictions limit construction and certain land uses. There are 24 structures in violation of these criteria at Davis-Monthan AFB. Of these, three have the required waivers, nine are authorized deviations to airfield criteria, five structures are exempt from waivers, and seven requests for waivers are in progress (Davis-Monthan AFB 2006a).

The CZs at Davis-Monthan AFB are within Base boundaries; however, APZs I and II extend outside of the Base. Both CZs have obstructions within them. The CZ on the south end of the

runway has 11 obstructions, while the CZ on the north end has 6 obstructions. Davis-Monthan AFB is currently working to address these violations (Davis-Monthan AFB 2006a).

### **3.9.2.2 EXPLOSIVES SAFETY**

Air Force Manual 91-201, *Explosives Safety Standards*, represents the USAF guidelines for complying with explosives safety. This regulation, as well as AFI 91-204, identifies explosive safety mishaps involved in both explosive and chemical agents. Explosives include ammunition, propellants (solid and liquid), pyrotechnics, explosives, warheads, explosive devices, and chemical agents and associated components presenting real or potential hazards to life, property, or the environment.

Siting requirements for munitions and ammunition storage and handling facilities are based on safety and security criteria. Air Force Manual 91-201, *Explosives Safety Standards*, requires defined distances be maintained between munitions storage areas and a variety of other types of facilities. These distances, called QD arcs, are determined by the type and net explosive weight of explosive material to be stored. No inhabited facilities are allowed within the QD arcs. Each explosive material storage or handling facility has QD arcs extending outward from its sides and corners for a prescribed distance. The activities with QD arcs at Davis-Monthan AFB include: the munitions storage area; the explosive ordnance disposal (EOD) area; the alert hangar and apron; combat aircraft parking areas; hot cargo pad; aircraft explosives cargo area; the arm/dearm aprons on the airfield; the AMARG EOD area; and the AMARG ammunition shipping/inspection/storage facilities (Davis-Monthan 2006a).

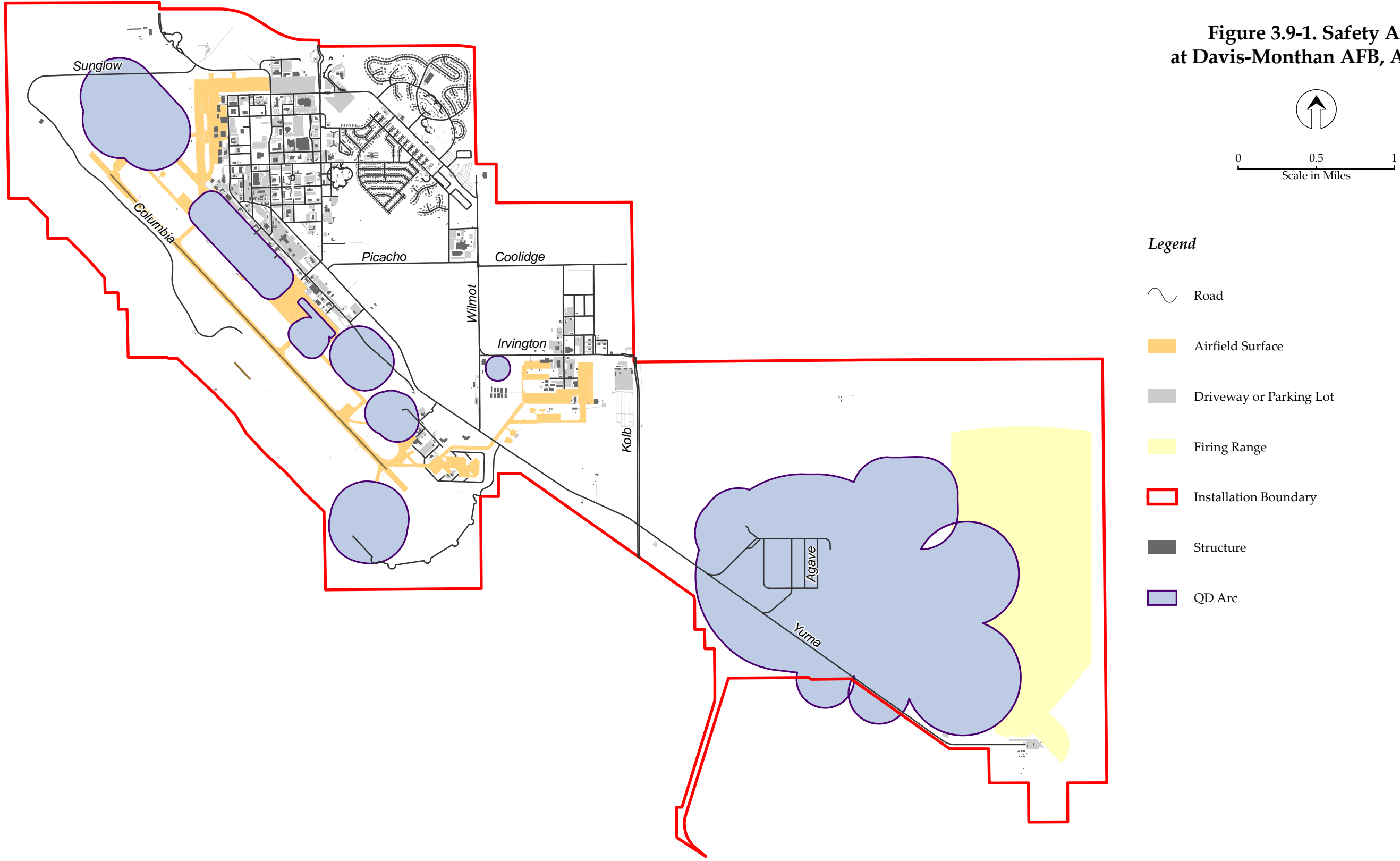
Within these QD arcs, development is either restricted or prohibited altogether in order to ensure safety of personnel and to minimize potential for damage to other facilities in the event of an accident. In addition, explosive material storage and handling facilities must be located in areas where security of the munitions can be maintained at all times. Identifying the QD arcs ensures construction does not occur within these areas. The locations of QD arcs at Davis-Monthan AFB are depicted on Figure 3.9-1.

### **3.9.2.3 ANTI-TERRORISM/FORCE PROTECTION**

As a result of terrorist activities, the DoD and the USAF have developed a series of AT/FP guidelines for military installations. These guidelines address a range of considerations that include access to the installation, access to facilities on the installation, facility siting, exterior design, interior infrastructure design, and landscaping (UFC 4-010-01, 2002). The intent of this siting and design guidance is to improve security, minimize fatalities, and limit damage to facilities in the event of a terrorist attack.

Many military installations, such as Davis-Monthan AFB, were developed before such considerations became a critical concern. Thus, under current conditions the unit is not able to comply with all present AT/FP standards. However, as new construction occurs, it would incorporate these standards, and as facilities are modified, AT/FP standards would be incorporated to the maximum extent practicable.

**Figure 3.9-1. Safety Arcs  
at Davis-Monthan AFB, Arizona**





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### **3.10 SOLID AND HAZARDOUS MATERIALS AND WASTES**

#### **3.10.1 Definition of the Resource**

This section describes the affected environment associated with solid waste management, hazardous materials and wastes, storage tanks, ACMs, and the ERP sites associated with the proposed construction and demolition areas.

The terms “hazardous materials” and “hazardous waste” refer to substances defined as hazardous by CERCLA and the Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act (RCRA). In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261. Petroleum products include petroleum-based fuels, oils, and their wastes. The ERP is a USAF program to identify, characterize, and remediate environmental contamination from past activities at USAF installations.

Issues associated with hazardous material and waste typically center around waste streams; underground storage tanks (USTs); aboveground storage tanks (ASTs); and the storage, transport, use, and disposal of pesticides, fuels, lubricants, and other industrial substances. When such materials are improperly used in any way, they can threaten the health and well being of wildlife species, habitats, and soil and water systems, as well as humans. This section also considers solid waste. The ROI for hazardous materials and wastes includes Davis-Monthan AFB.

#### **3.10.2 Existing Conditions**

##### **3.10.2.1 SOLID WASTE MANAGEMENT**

Municipal solid waste management and compliance at USAF installations is established in AFI 32-7042, *Solid and Hazardous Waste Compliance*. In general, AFI 32-7042 establishes the requirements for installations to have a solid waste management program to incorporate a solid waste management plan; procedures for handling, storage, collection and disposal of solid waste; record-keeping and reporting; and pollution prevention. AFI 32-7080, *Pollution Prevention Program*, addresses source reduction, resource recovery, and recycling of solid waste.

Solid waste generated from residential sources or by mission activities on Davis-Monthan AFB is removed by a licensed contractor or the City of Tucson and taken to the Los Reales Landfill operated by the City of Tucson (Davis-Monthan AFB 2005a). In calendar year 2006, Davis-Monthan AFB generated 4,381 tons of solid waste, 17 tons of construction and demolition debris, and diverted 2,694 tons for recycling. Recyclables are picked up by the Arizona Training Program at 139 buildings across the Base. The remaining useful life for the re-permitted 1,000 acre City of Tucson Landfill is 60 years (personal communication, Bowman 2007). The proper

management and recycling or disposal of construction and demolition debris is the responsibility of construction site contractors.

### **3.10.2.2 HAZARDOUS MATERIALS AND WASTE**

The majority of hazardous materials used by USAF and contractor personnel at Davis- Monthan AFB are controlled in accordance with AFI 32-7086, *Hazardous Material Management*. The AFI established the requirements for the procurement, handling, storage, and issuing of hazardous materials and the redistribution/reuse of hazardous materials. The hazardous materials authorization process includes review and approval by USAF personnel to ensure USAF users are aware of exposure and safety risks. Base management plans further serve to ensure compliance with applicable federal, state, and local regulations.

Aircraft flight operations and maintenance, as well as installation maintenance, require the storage and use of many types of hazardous materials. These materials, such as flammable and combustible liquids, include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, and sealants.

Davis-Monthan AFB is a large-quantity hazardous waste generator, since it generates more than 2,200 pounds of hazardous waste per month (personal communication, Shore 2004). Hazardous wastes are managed in accordance with the *Davis-Monthan AFB Hazardous Waste Management Plan* (Davis-Monthan AFB 2005a). Hazardous wastes are generated from a variety of functions on Base, including aircraft and vehicle operations and maintenance (hydraulic and lubricating oils and JP-8 jet propulsion fuels); medical and dental facilities; morale, welfare, and recreation; photographic development; and security operations. These wastes include batteries, fluorescent lamps, wastewater sludge, and various paint and other chemical process wastes. Davis-Monthan AFB recycles off-specification fuel, used oil, used antifreeze, and some types of solvents and aqueous cleaners. There are approximately 79 Hazardous Waste Satellite Accumulation Points (SAPs) located on Base; the number of which may vary with changes in operational procedures and management practices.

Wastes generated on Base and not stored in accumulation points must also be moved to the permitted, storage facilities within 90 days. Wastes generated on Base are typically moved to Defense Reutilization and Marketing Office (DRMO) (Building #7815) and managed under regulations set forth in DRMO's RCRA Part B storage permit. Approximately 54,916 pounds of RCRA-defined hazardous wastes at Davis-Monthan AFB were disposed of in calendar year 2006 (personal communication, Shore 2007).

### **3.10.2.3 STORAGE TANKS**

There are currently 111 ASTs located at Davis-Monthan AFB, with a storage capacity of 50 to 15,000 gallons (Air Force 2007a). These tanks are used for refueling as well as storage of fuels and used oil. There are currently 75 USTs, of which 28 USTs are regulated by the Arizona Department of Environmental Quality (ADEQ) (Air Force 2007b). All storage tanks at Davis-Monthan AFB are inspected and maintained by Civil Engineering Power Production and the

Liquid Fuels Section, and integrity and condition of the associated piping is verified by the users.

The J-3 Pumphouse (Building #206) and the J-4 Pumphouse (Building #207) have 10 USTs at each facility which are proposed for demolition. The J-3 Pumphouse (#206) has 9 active USTs containing 39,500 gallons each of JP-8. The J-4 Pumphouse has 5 active USTs containing 50,000 gallons each of JP-8. The inactive tanks at each building are closed in place. An aboveground closed loop wash water recycle system provides service to Buildings 4712, 4812, and 4815 (which is proposed for demolition).

**Table 3.10-1. Storage Tanks in the Vicinity of Proposed Construction/Demolition Activities**

<i><b>Building Description &amp; Number</b></i>	<i><b>Tank ID</b></i>	<i><b>Tank Type</b></i>	<i><b>Status</b></i>	<i><b>Size (gallons)</b></i>	<i><b>Fuel Type</b></i>
J-3 Pumphouse (206)	#1-9	USTs	Active	39,500 each	JP-8
J-3 Pumphouse (206)	#10	USTs	Inactive	50,000	Foam
J-4 Pumphouse (207)	#1,3,5,7,9	USTs	Active	50,000 each	JP-8
J-4 Pumphouse (207)	#2,4,6,8	USTs	Inactive	50,000 each	NaOH
J-4 Pumphouse (207)	#10	USTs	Inactive	50,000	Foam

Note: NaOH is sodium hydroxide used for a preservative.

Source: Davis-Monthan AFB 2004, personal communication, Machado 2007

#### **3.10.2.4 ASBESTOS**

ACMs are those materials that contain greater than 1 percent asbestos. Friable, finely divided, and powdered wastes containing greater than 1 percent asbestos are subject to regulation. A “friable” waste is one that can be reduced to a powder or dust under hand pressure when dry. Non-friable ACMs, such as floor tiles, are considered to be non-hazardous, except during removal and/or renovation, and are not subject to regulation.

An asbestos management plan provides guidance for the identification of ACMs and the management of asbestos wastes. An asbestos facility register is maintained by Davis-Monthan Civil Engineering. The design of building alteration projects and requests for self-help projects are reviewed to determine if ACMs are present in the proposed work area. ACM wastes are removed by licensed contractors and disposed of in accordance with state and federal regulations. Additionally, it is likely that some of the buildings proposed for demolition contain LBP.

### 3.10.2.5 ENVIRONMENTAL RESTORATION PROGRAM

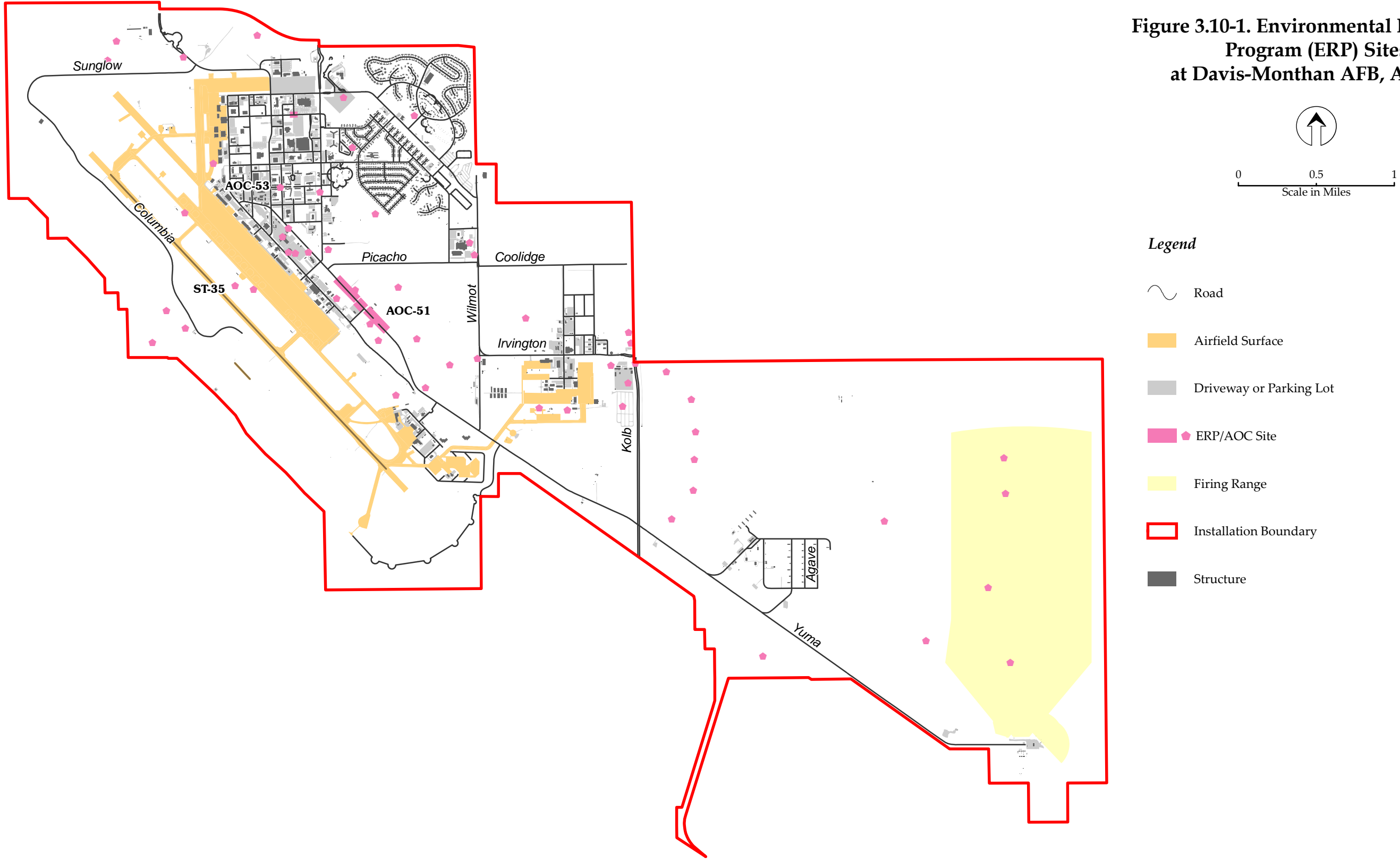
The DoD developed the ERP to identify, investigate, and remediate potentially hazardous material disposal sites that existed on DoD property prior to 1984. Fifty-three ERP sites and three Areas of Concern have been identified at Davis-Monthan AFB and are regulated under CERCLA. Three of the ERP sites are in remedial action-operation while two sites will have removal operations completed in 2008. The remaining sites either require no further action or have site closed status and are waiting for concurrence by the regulators (Davis-Monthan AFB 2005b; personal communication, Oden 2007). The *Davis-Monthan AFB Environmental Restoration Program Site Status Summaries* (Davis-Monthan AFB 2005a) summarizes the current status of the Base ERP and presents a comprehensive strategy for implementing actions necessary to protect human health and the environment. This strategy integrates activities under the ERP and the associated environmental compliance programs that support full restoration of the Base.

ACC policy requires that any proposed project on or near a Davis-Monthan AFB ERP site be coordinated through the Davis-Monthan ERP Manager. Construction and demolition would take place at or near several ERP sites (DP-51, ST-35, and ST-53) (Figure 3.10-1). A construction waiver may be required for those projects that have the potential to disturb the ERP sites noted below.

DP-51 is an AOC designated AOC-51 located directly south of Casa Grande Road near the flightline. It is a dump site that was discovered in 2000 and a following geophysical investigation determined that there was sufficient uncharacterized material to impact future land use and pose a concern for the health and safety of employees. In FY 2004, an Interim Remedial Action project was conducted to characterize the contamination, excavate, dispose, and restore the site. In 2005, the site was closed and no further action will be taken (Davis-Monthan AFB 2005b).

ERP Site ST-35 is associated with the J3 Pumphouse located near the center of the flightline which contains fuel pumps and a 6-inch JP-4/JP-8 hydrant fueling system that was constructed in the mid-1950s and continually modified. In October 2005 the pumphouse was taken out of service to evaluate the tanks and associated lines and during soil excavation fuel was discovered. Lateral and vertical extent of subsurface soil contamination was delineated as a mixture of JP-4 and JP-8 extending westerly towards the runway. Water, suspected to be from the fire suppression lines, caused the petroleum plume to spread vertically to within 100 feet of the runway and laterally to a depth of 240 feet below ground surface.

Enhanced treatment system was installed in the co-mingled JP-4 and JP-8 plume to extract fuel in the impacted soil and perched water-bearing zones to minimize any impacts to the regional drinking water aquifer. The expansion of the treatment system was completed in September 2007 to include additional vapor monitoring wells within the impacted zone of the expanded plume. Application of hydrogen peroxide through deep-well injection will continue as needed to remove fuel from the shallow water.



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ERP Site ST-53 includes the J4 Pumphouse, the J3 Hot Refueling Pits 21 through 25, and the J4 Hot Refueling Pits 28 through 32. Over the past 20 years, several releases of aviation fuels have been documented from the subsurface pipelines and the site was originally designated as a result of the release near the J3 Pumphouse. A pump and treat system was installed in 1995 as part of groundwater remedial action and a Soil Vapor Extraction system was installed and operated between 1995 and 2003. In 2004 and 2005, soil gas surveys were conducted to delineate the impacted soil for both the J3 and J4 Pumphouse areas. A Remedial Investigation/Feasibility Study was conducted in 2006 and no further action was recommended (personal communication, Oden 2007).

### **3.10.2.6 MILITARY MUNITIONS RESPONSE PROGRAM (MMRP)**

In recent years, the management of military munitions and military ranges has come under increased regulatory and public scrutiny as evidenced by new regulations, increased enforcement and public involvement, litigation, and range use restrictions and closures. In an effort to manage these ranges, DoD installations have begun to inventory closed, transferred, and transferring ranges to facilitate planning and implementation of associated regulations. Davis-Monthan AFB has four active ranges, four closed ranges, two transferred ranges, and one transferring range (Davis-Monthan AFB 2006a). For the purpose of this analysis, the closed ranges are those of interest because they could coincide with proposed construction and/or demolition activities. The closed ranges include (Figure 3.10-2):

- *Training Areas 1 and 2.* Training Area 1 (151 acres) and Training Area 2 (186 acres) are both located south of the runway. These areas were historically used in conjunction with helicopter training exercises involving military munitions. These areas were classified as closed ranges due to the established inhabited building distance of 1,250 feet (Davis-Monthan AFB 2001b).
- *Poorman Range Closed Areas.* The active Poorman Ranges Area has been reduced by 2,145 acres including several former range buffers and firing fans (Davis-Monthan AFB 2001b).
- *Wilmot National Guard Target Range.* The closed portion of this range includes 1,278 acres at the southeastern end of the runway (Davis-Monthan AFB 2001b).

There is a potential for ordnance and explosive contamination in all closed range areas. Any proposed activities in these areas should be coordinated through the Civil Engineering Squadron (CES)/Environmental Restoration Element (CEVR) Point of Contact, and a waiver for construction would be required.

## **3.11 INFRASTRUCTURE**

### **3.11.1 Definition of Resource**

The infrastructure elements at Davis-Monthan AFB include transportation and utility systems, which service all areas of the Base. Transportation refers to roadway and street systems. Utilities include potable water, wastewater, storm drainage system, electrical system, heating



and cooling systems and liquid fuels. The ROI for these resources consists of Davis-Monthan AFB.

### **3.11.2 Existing Conditions**

#### **3.11.2.1 TRANSPORTATION**

Davis-Monthan AFB, located within the city limits of Tucson in Pima County Arizona, is in close proximity to Interstate 10 (I-10), just west of the installation and Interstate 19 (I-19) southwest of the installation. I-10 provides east-west access to Phoenix and El Paso, Texas, while I-19 connects Tucson with the Mexican border. Access to the Base includes the Main Gate Access on Craycroft Road, additional gate access off Swan, Wilmot, and Irvington Roads (see Figure 1.2-1).

There are four major primary roads on Davis Monthan AFB:

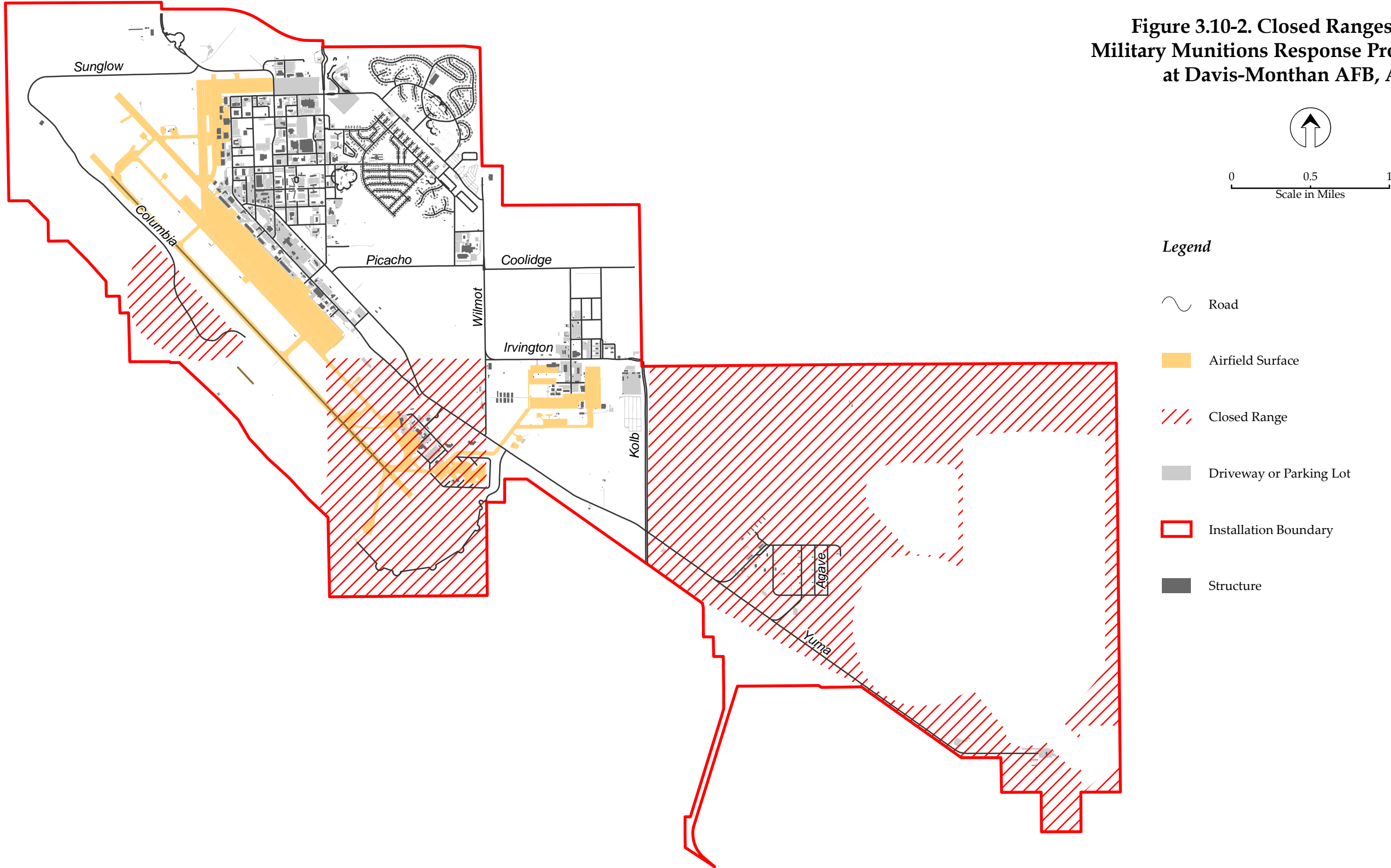
- Craycroft Road runs generally north/south through the main Base, and provides the main entry point to the Base. Wilmot Road is a short artery, which connects the Wilmot Gate at the east end of the Base and provides access to the Base hospital and AMARG.
- The intersection of Sunglow Road, 5<sup>th</sup> Street, and Yuma Street begins at the Swan Gate and runs north/south through the Base. The Yuma Street extension of these combined arteries intersects with Craycroft Road and Picacho Street. Picacho Street runs east/west and connects with the Yuma Street extension and with Wilmot Road.

The major secondary roads on the main Base area include: Quijota Road, Arizola Street, Comanche Street, Granite Street Ironwood Street, First Street, and Third Street. The AMARG Area of Davis-Monthan AFB is served by Irvington Road, the Wilmot Road extension, Coolidge Street, and Wickenburg Street.

The City of Tucson does not provide mass transit on Davis-Monthan AFB, although there are nearby bus stops including service to the main gate; there is no direct rail connection to the Base (Davis-Monthan AFB 2006a). There are officially designated bike paths on Base as well as two major pedestrian routes on Kachina and Sixth streets that serve the dormitory area. Additional pedestrian paths are planned for the Airman living areas.

Tucson International Airport provides air passenger service to several cities where airline hubs provide access worldwide. Tucson International Airport provides direct international flight service to Mexico. The airport is located approximately ten miles from the Main Gate at Davis-Monthan AFB and can be reached in approximately fifteen minutes by car or by airport shuttle bus. Military passenger and military cargo are served by the Military Air Passenger Terminal Building (Building 4819) and the Air Cargo Terminal (Building 4822). Additionally, east of the Air Cargo Terminal is a cargo marshalling area for cargo handling (Davis-Monthan AFB 2006a).

**Figure 3.10-2. Closed Ranges Under the  
Military Munitions Response Program (MMRP)  
at Davis-Monthan AFB, Arizona**



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**Parking.** Generally, parking is adequate on Davis-Monthan AFB. However, as is the case with many installations, parking at high use customer-oriented locations can be problematic. The Base Commissary parking lot experiences parking problems during peak use, especially from 1030 to 1500 daily. On military paydays and holidays the parking situation is more problematic. An additional 465 spaces are required to address this situation and the expansion of Commissary retail space. The Base is exploring alternatives to address the parking situation. Another area of concern is the Blanchard Golf Course. The current parking area is not adequate to handle the golfing patrons as well as those who visit the Eagle's Nest Restaurant for breakfast and lunch (Davis-Monthan AFB 2006a).

### 3.11.2.2 UTILITIES

**Potable Water.** Davis-Monthan AFB obtains potable water for a service population of approximately 7,400 from eight active on-base ground water wells. The Base has drilled 17 water supply wells; of which, eight are in production status with a capacity of 5.8 million gallons per day (MGD), three are non-operational wells, and six do not have sufficient flow to support production. Average daily demands for the last three years have equaled approximately 1.1 MGD, although summer time demands can increase to as much as 2.37 MGD. The Base has two separate distribution systems. The Upper Water Supply System supplies water to the AMARG area, the hospital, Palo Verde Village, the 41st and 43rd Squadron areas, and the munitions storage area. The Lower Water Supply System supplies the remaining areas on-base. Water is chlorinated at the well heads and pumped into the storage tanks. The small arms range and horse stables are separately supplied by a well and a 2,000 gallon storage tank. The Base does not have any interconnection with the City of Tucson or other water supply source (Davis-Monthan AFB 2004d).

For potable water storage the Base has four elevated storage tanks and two ground storage tanks with an approximate capacity of 1.5 million gallons. The Base also has two 500,000 gallon raw water cut-and-cover storage tanks (Davis-Monthan AFB 2006a, Davis-Monthan AFB 2004d). Cut-and-cover tanks are generally steel tanks that are submerged into the ground and covered by soil resembling reservoirs.

**Wastewater.** Pima County treats approximately 1 MGD of wastewater discharged from the Base into the county sanitary sewer system. Pima County functions as the sole treatment facility for all the wastewater generated by the City of Tucson as well. Its total system capacity is approximately 85 MGD, and it treats approximately 70 MGD. The sanitary sewer collection line exits the Base in the extreme northwest corner, where it crosses Golf Links Road. The Base has five lift stations, two in the AMARG area, and three along the flightline. No capacity issues with the lift stations have been identified (Davis-Monthan AFB 2006a); however, there is no redundancy of the lift stations and therefore if any given lift station fails, the entire sewer line is down. ACC has a requirement for at least double redundancy as required per Air Force regulations (personal communication, Maisch 2005).

There are various areas on Base that are not connected to the sewer system. These are served by septic systems.

**Storm Drainage System.** Storm water runoff on Davis-Monthan AFB is managed through a storm water system consisting of a combination of swales, culverts, and pipes currently having adequate capacity to handle most flows. The Base has three large underground collector pipes, one along Fifth Street, one for the runway and apron areas, and the other beneath the northern airfield apron. The system has one retention pond on the edge of the AMARG area just due south of the golf course. Generally, the runoff travels towards the northwest (Davis-Monthan AFB 2006a).

The storm drainage system is generally adequate for the arid climate. However, during the rainy season from July through September, storms can lead to flooding in portions of the Base. Excessive flows of storm water have degraded the security gates at the outfall locations where the flow exit the Base (Davis-Monthan AFB 2006a). The Base is divided into eight drainage areas with nine outfalls that are permitted under an NPDES Multi-Sector Permit number AZR05A12F (Davis-Monthan AFB 2004b). Characteristics of these drainage areas are identified in Table 3.11-1.

**Table 3.11-1. Characteristics of Outfalls and Their Drainage Areas**

<i>Drainage Area</i>	<i>Estimated Drainage Area (acres)</i>	<i>Estimated Impervious Area (acres)</i>	<i>Percent Impervious</i>
001	1,280	384	30
002A	2,138	535	25
002B/C	390	156	40
004	2,043	41	2
005A	344	0	0
005B	98	0	0
006	2,414	0	0
007	1,164	116	10
008	74	4	5
009	529	11	2
010	572	257	45

Source: Davis-Monthan AFB 2004b

**Electrical System.** Davis-Monthan AFB consumes approximately 90,000 megawatt hours on an annual basis. Tucson Electric Power (TEP) provides the electric power through two 46 kilovolt (kV) lines. A substation, with the capacity to handle loads of 25 millivolt amperes, steps the power down to 13.8 kV and distributes it to eight circuits. Separate TEP lines enter the Base from the southwest to supply the control tower, Building 8030, and Navigation Aids west of the airfield (Davis-Monthan AFB 2006a; personal communication, Canez 2005).

**Heating and Cooling Systems.** Natural gas is used primarily for these facilities, space heating, hot water for the main Base and multi-family housing and comfort heating in multi-family housing. Southwest Gas Company provides natural gas via a commercial line entering the northwest corner of the Base. The AMARG and hospital areas are supplied separately from a

line entering the Base from the south. These two separate supply systems are linked at the FAM Camp area and have a delivery capacity of 3.4 million cubic feet (MCF) per day. Maximum daily consumption during the last ten years was 2.5 MCF or approximately 74 percent of the delivery capacity (Davis-Monthan AFB 2006a).

Davis-Monthan AFB does not have a central heating and cooling system for the Base. There exist two mini-systems with two central plants. One supplies chilled air to the airmen's dormitories and some other facilities. The second provides both heat and chilled air to the hospital. Building 5101 is capable of producing about 1,200 tons of chilled air, and Building 401 provides both chilled air and heat to various portions of the Base (Davis-Monthan AFB 2006a).

**Liquid Fuels System.** Davis-Monthan AFB functions as a distribution center in the DoD Fuels System for all military installations in the region. It receives fuel within the Defense Fuels Region - South and distributes it to other consumers as a Defense Fuels Support Point. These other consumers in southern Arizona include Ft. Huachuca (Army), Arizona National Guard, Yuma Proving Grounds, Sky Harbor Airport (Phoenix), and Tucson ANG at Tucson International Airport (Davis-Monthan AFB 2006a).

Since Davis-Monthan supports a large number of flying operations, most of its fuel handling consists of JP-8. The Base receives JP-8 in two ways: via commercial pipeline and highway tanker truck. The Base receives, stores, and distributes a variety of fuels, that include JP-8 aviation fuel, DL-2 diesel fuel, BDI bio-diesel, Mogas unleaded regular, and two kinds of cryogenics fuel: liquid oxygen and liquid nitrogen (Davis-Monthan AFB 2006a).

The Kinder-Morgan Pipeline routinely delivers JP-8 to one of three 60,000 barrel storage tanks. This six-inch pipeline has the capability to deliver 579,600 gallons per 24-hour period. In the event of pipeline failure, these storage tanks can receive 3,456,000 gallons per day via tanker truck. JP-8 can be dispensed to flightline fuel hydrants at a rate of 1,100 gallons per minute (GPM) using the pumps or 450 GPM using gravity flow in event of pump failure (Davis-Monthan AFB 2006a).

The flightline uses four locations as hot refueling pits; two of these are serviced by Pump House J-4, and two are serviced by Pump House J-3. Pump Houses J-1 and J-2 are not currently active. These four pump houses are connected by an underground pipeline. In addition, on the West Ramp, Pump House A-2 can dispense fuel; however, it is resupplied by tanker truck. On the West Ramp, Pump House A-1 is inactive (Davis-Monthan AFB 2006a).

Other features of the JP-8 fueling system include mobile units to increase the number of simultaneously-fueled aircraft during surge operations, berms and dedicated fire system for the tank farm, and a series of underground tanks at each pump house (Davis-Monthan AFB 2006a).

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## **4.0 ENVIRONMENTAL CONSEQUENCES**

This section of the EA assesses potential environmental consequences associated with the Proposed Action and the No Action alternative. Potential impacts are addressed in the context of the scope of the Proposed Action as described in Section 2.0 and in consideration of the potentially affected environment, as characterized in Section 3.0.

### **4.1 EARTH RESOURCES**

#### **4.1.1 Methodology**

Protection of unique geologic features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards and soil limitations are considered when evaluating impacts to earth resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

Analysis of potential impacts to geologic resources typically includes identification and description of resources that could potentially be affected, examination of the potential effects that an action may have on the resource, assessment of the significance of potential impacts, and provision of mitigation measures in the event that potentially significant impacts are identified. Analysis of impacts to soil resources resulting from proposed activities examines the suitability of locations for proposed operations and activities. Impacts to soil resources can result from earth disturbance that would expose soil to wind or water erosion.

#### **4.1.2 Impacts**

##### **4.1.2.1 PROPOSED ACTION**

Under the Proposed Action, up to approximately 6.2 acres of surface area would be temporarily disturbed as a result of construction and demolition of the proposed facilities and parking areas (2.8 acres of new facilities and pavements, and 3.3 acres of demolished facilities and pavements). There would be a net decrease in impervious surface of approximately -0.5 acres following completion of all the proposed construction and demolition.

The majority of the proposed construction and demolition would occur on the *Mohave soils and Urban Land* soil mapping unit, and the remainder of the proposed activities would occur on the *Tubac Gravelly Loam* mapping unit (Figure 4.1-1). These soil mapping units are typically used for homesites or urban development and the primary limitation to their use as such is their shrink-swell potential. Building on these soil mapping units would require properly designed foundations and footings and would also require diverting runoff away from the buildings to help prevent potential structural damage (NRCS 1993).

The grading of existing soil and placement of structural fill for new facilities would not substantially alter existing soil conditions at Davis-Monthan AFB because much of this land has been previously disturbed and no longer includes naturally occurring soils, as described by the Urban Land soil mapping unit. There are no special qualities associated with the soils or geologic resources at these sites.



Implementation of construction BMPs would be employed to minimize impacts associated with erosion. These BMPs would include, but not be limited to installation of silt fencing and sediment traps, application of water sprays to keep soil from becoming airborne, and revegetation of disturbed areas as soon as possible, as appropriate. Therefore, potential impacts to earth resources would be minimal, and no significant impacts would occur as a result of implementation of the Proposed Action.

#### **4.1.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, none of the proposed construction or demolition activities would occur and there would be no new impacts to earth resources. Conditions would remain as described in Section 3.1.2.

## **4.2 WATER RESOURCES**

### **4.2.1 Methodology**

Criteria for evaluating impacts related to water resources associated with the Proposed Action are water availability, water quality, and adherence to applicable regulations. Impacts are measured by the potential to reduce water availability to existing users, endanger public health or safety by creating or worsening health hazards or safety conditions, or violate laws or regulations adopted to protect or manage water resources.

The ADEQ Water Division and the USACE are the regulatory agencies that govern water resources in the state of Arizona and at Davis-Monthan AFB. The CWA of 1977 regulates pollutant discharges and development activities that could affect aquatic life forms or human health and safety.

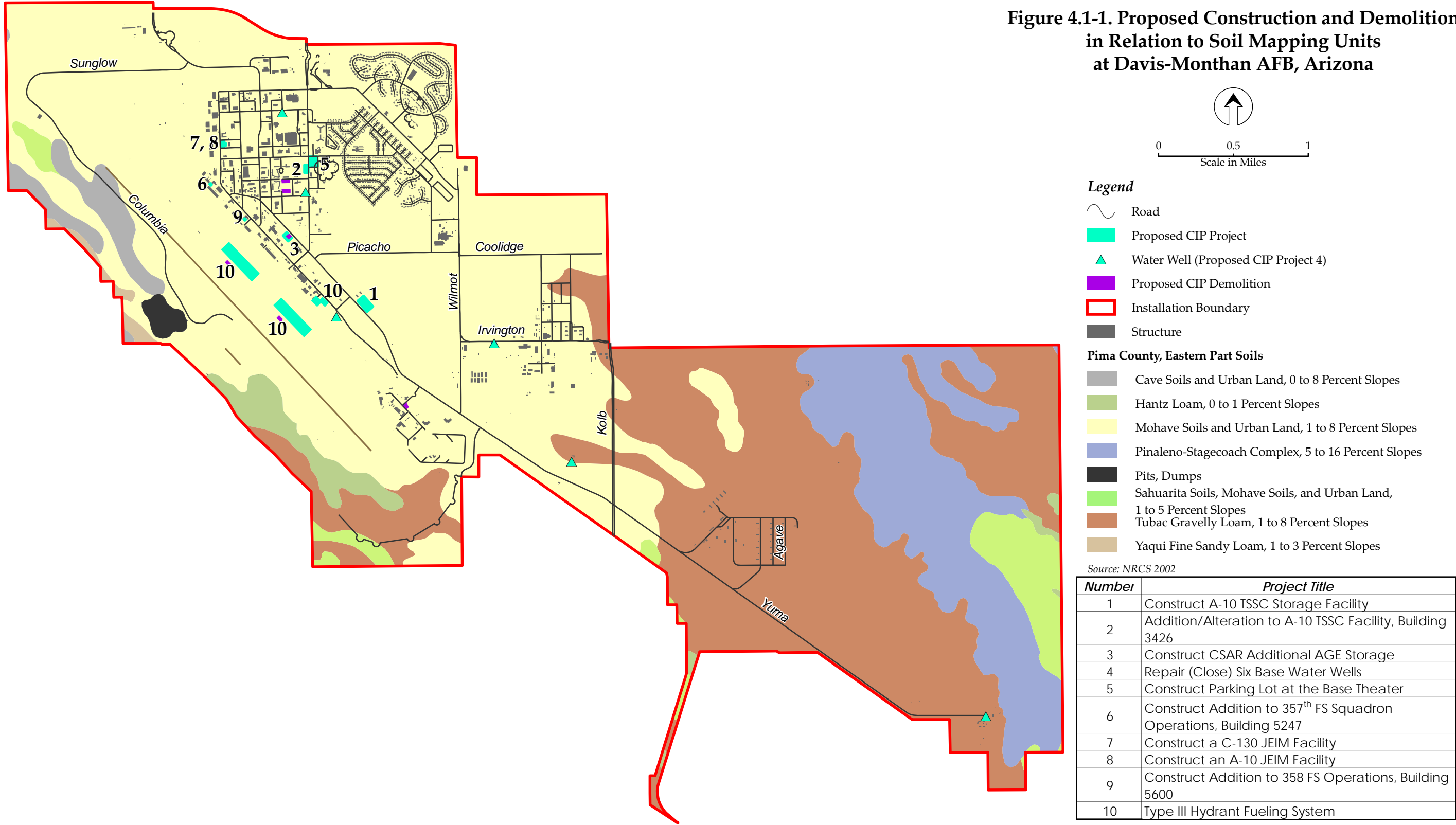
### **4.2.2 Impacts**

#### **4.2.2.1 PROPOSED ACTION**

With regard to water resources, the primary concerns associated with the Proposed Action include effects on water quality during construction and with operation of proposed facilities, impacts on surface waters, changes to surface water drainage and ground water recharge, and effects on the availability of local water supplies.

New facility construction at Davis-Monthan AFB would result in a net decrease of 0.5 acres of impervious surface, which represents a decrease of less than one percent in impervious surface. This decrease in impervious surface would result in a minor decrease in storm water runoff at the Base. Prior to construction, the Base would be required to obtain coverage under an Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit AZG2003-001 by filing an NOI for the construction activity with ADEQ and preparing an SWPPP to manage storm water associated with the construction activity. The SWPPP must include BMPs to minimize the potential for exposed soils or other contaminants from construction activities on the Base to reach surface waters. Such BMPs would include the use of silt fences, covering of soil stockpiles, use of secondary containment for the temporary storage

Figure 4.1-1. Proposed Construction and Demolition in Relation to Soil Mapping Units at Davis-Monthan AFB, Arizona



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of hazardous liquids, establishment of buffer areas near intermittent streams, and revegetation of disturbed areas in a timely manner. Adherence to the requirements of the NPDES construction permit would minimize impacts to water resources during construction. The Proposed Action would also require modifications to the installation storm drainage system and updating the Base SWPPP in order to properly manage storm water.

It is not anticipated that the Proposed Action would result in any direct impacts to waters of the U.S., although some proposed construction projects would be located in proximity to waters of the U.S. (Figure 4.2-1). Site designs currently avoid these areas; however, if final site design of any of the proposed facilities would result in impacts to any of these waterways, a jurisdictional delineation under the appropriate guidance would be conducted to determine if the watercourses are regulated under Section 404. Davis-Monthan AFB would then coordinate with the USACE to obtain any required Section 404 permits and would prepare additional NEPA documentation, which would include a Finding of No Practicable Alternative. BMPs provided in the SWPPP would be implemented to ensure that indirect impacts to waterways (e.g., silting, runoff) are minimized such that these impacts are insignificant. In addition, no construction would occur within the floodplain associated with Atterbury Wash.

The new buildings, pavement, and associated landscaping could lead to a small increase in the amount of water consumed on Base; however, given that the Proposed Action does not involve any increases in personnel or operations, and that many of the new facilities would replace old facilities and therefore would likely be more efficient, the increase in water consumption would be minimal and impacts would be less than significant. Further, adherence to the principles of the *Design Compatibility Standards, Davis-Monthan AFB* (Davis-Monthan AFB 1998c) would ensure that landscape design is based on budgeting of water use and xeriscaping design concepts (i.e., landscaping with native vegetation that requires little or no water) (Davis-Monthan AFB 2006a).

#### **4.2.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, no construction would occur and no new impacts to water resources would result. Conditions would remain as described in Section 3.2.2.

### **4.3 BIOLOGICAL RESOURCES**

#### **4.3.1 Methodology**

Evaluation of impacts is based upon 1) the importance (legal, commercial, recreational, ecological, or scientific) of the resource, 2) the rarity of a species or habitat regionally, 3) the sensitivity of the resource to proposed activities, and 4) the duration of the impact. Impacts to biological resources are considered to be greater if priority species or habitats are adversely affected over relatively large areas and/or disturbances cause reductions in population size or distribution of a priority species.

## **4.3.2 Impacts**

### **4.3.2.1 PROPOSED ACTION**

#### ***VEGETATION***

The Proposed Action would result in a net decrease of 0.5 acres of impervious surface; approximately 6.2 acres would be temporarily disturbed. This would primarily occur in the portion (approximately 60 percent) of the Base that is identified as developed (see Section 3.3.2.1). Within areas of disturbance, there would be small-scale vegetation removal in the landscaped and mowed areas as a result of the Proposed Action. Post-construction and demolition activities would involve restoration and landscaping of disturbed areas where appropriate. To a large extent, the areas associated with proposed construction and/or demolition are currently developed and have been previously disturbed. There are no known sensitive plant species at any of the proposed construction or demolition sites. As a result, impacts to vegetation communities and individual populations would be expected to be minor under the Proposed Action.

#### ***ARIZONA NATIVE PLANT LAW***

Arizona contains more rare and unusual plants than anywhere else in the U.S. Under Arizona Native Plant Law (Arizona Revised Statutes Title 3, Chapter 7, *Arizona Native Plants*), native plants cannot be removed from any Arizona land without the permission of the landowner and a permit from the Arizona Department of Agriculture. Plants that fall under this jurisdiction include the saguaro, hedgehog cactus, pincushion cactus, and numerous others. Many of these species occur on Davis-Monthan AFB. As with other sensitive species, prior to implementation of the proposed construction and/or demolition activities, a qualified biologist would survey the site for any evidence of native plants protected under this statute. The results of this survey would be coordinated with the 355 CES/Environmental Analysis Element (CEVA) office and appropriate measures would be taken should any of these native plants be observed at the sites.

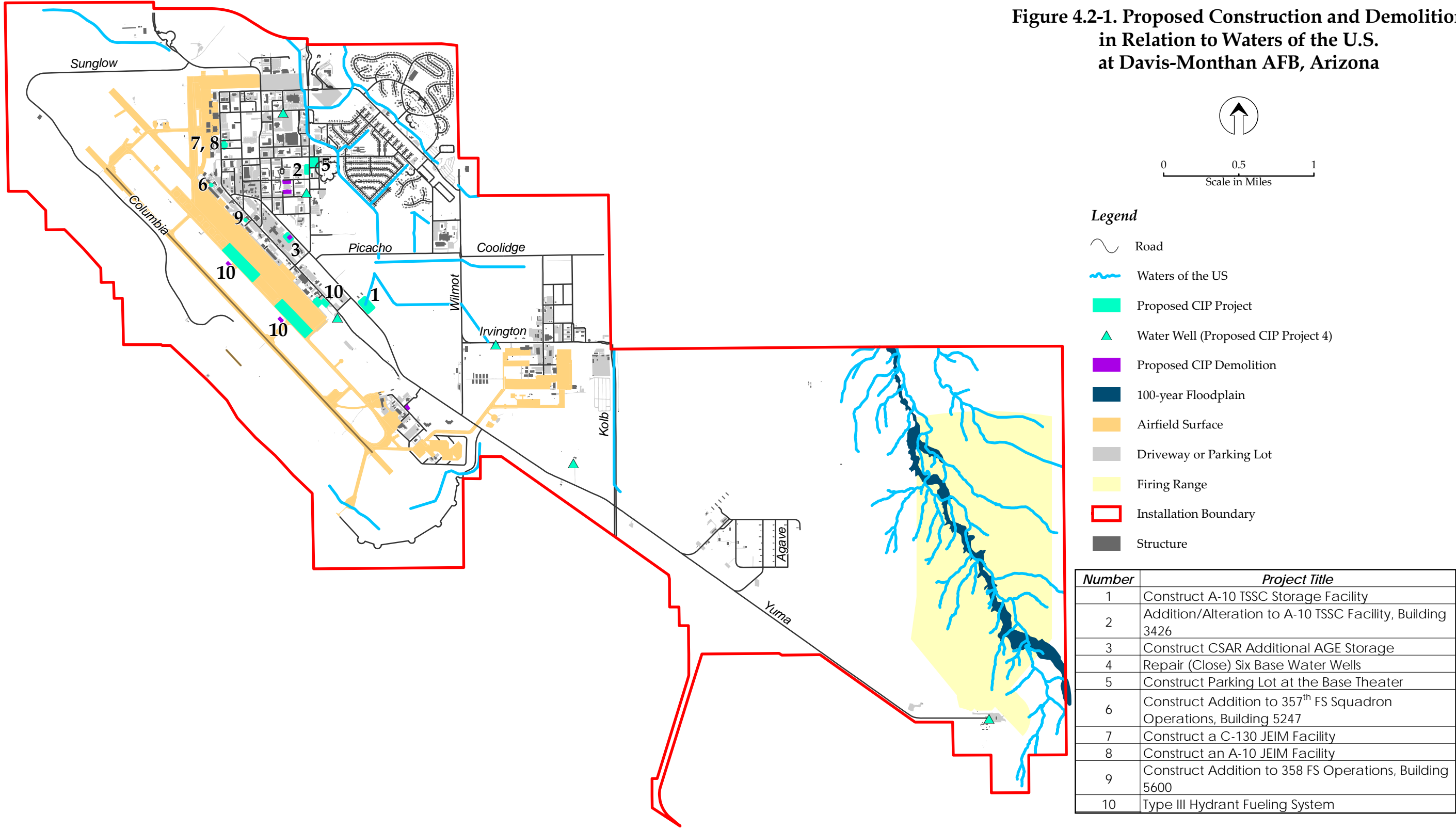
#### ***WILDLIFE***

Construction and demolition activities associated with the Proposed Action could temporarily disturb wildlife in the immediate vicinity of the proposed projects. Noise levels from construction equipment would occur in the immediate vicinity of the proposed individual projects. Less mobile species and fleeing species could be impacted as a result of construction and demolition activities; however, should mortalities occur, they would likely be isolated instances and would not result in long-term impacts to populations of wildlife species. Most of the species found at the Base are well-adapted to rural or semi-urban settings. It is expected that these species would continue to utilize the project area after implementation of the Proposed Action. Therefore, the implementation of the Proposed Action would not cause significant impact to wildlife species or their associated habitat.

#### ***MIGRATORY BIRDS***

There are six migratory bird species identified by the Arizona Partners in Flight Bird Conservation Plan that either occur or have potential to occur on Davis-Monthan AFB (Latta *et al.* 1999). Of the six species, only the rufous-winged sparrow and Costa's hummingbird have been documented on the Base (Tucson Bird Count 2004; personal communication, Lisa 2007).

Figure 4.2-1. Proposed Construction and Demolition in Relation to Waters of the U.S. at Davis-Monthan AFB, Arizona



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The other four species may occur on the Base or the surrounding areas. Their occurrence would likely be transient and residential occurrence is not likely. Therefore, impacts to migratory bird species as a result of implementation of the construction and demolition activities associated with the Proposed Action would not be expected.

### ***SPECIAL-STATUS SPECIES***

No federally-listed threatened or endangered species are known to occur on the Base. While there are some state-listed species of concern known to occur, or have the potential to occur on Base, there are no known occurrences of these species within the vicinity of the proposed construction and demolition projects. Prior to implementation of the proposed construction and/or demolition activities, a qualified biologist would survey the site for any evidence of these sensitive species. The results of this survey would be coordinated with the 355 CES/CEVA office and appropriate measures would be taken should sensitive species be observed at the sites.

The following discussion analyzes the potential for impacts to the five special status species (Table 3.3-3) identified as occurring or having the potential to occur on Base.

#### ***Western Burrowing Owl***

Western burrowing owls are known to occur on Base. This species nests in ground burrows abandoned by other wildlife species (round-tailed ground squirrels). These colonial animal burrows are uncommon in the developed portions of the Base. The owl's diet is primarily arthropods, but it does consume small animals also (rodents, songbirds). While the landscaped areas on Base likely support limited arthropod, rodent, and songbird populations, the undeveloped portion of the Base could harbor more abundant populations of these species. No burrowing owls or nesting cavities (burrows) have been identified at the specific sites for the proposed construction and demolition (personal communication, Lisa 2007). Prior to implementation of any construction project where there is the potential for burrowing owls to be present, a survey of the site by a qualified biologist would be conducted. Should burrowing owls be present, AZGF protocol for managing the bird would be implemented. Therefore, there would be no impacts to the western burrowing owl as a result of the Proposed Action.

#### ***American Peregrine Falcon***

The American peregrine falcon is known to occur on Base (personal communication, Lisa 2007); although the falcon's preferred habitat (cliff habitat, overlooking woodlands and riparian areas) for this species does not occur on Base. Due to the lack of preferential habitat for this species, the known occurrences of the falcon are likely transient. Therefore, the Proposed Action would not be likely to impact the American peregrine falcon.

#### ***Lesser Long-nosed Bat***

The lesser long-nosed bat has not been documented on Base; however, they are known to come from the Rincon Mountains, just east of the Base. The lesser long-nosed bat forages on nectar of columnar cacti at night. The bat may occur as a transient forager in areas with columnar cacti; however, Davis-Monthan AFB does not have the preferred foraging habitat for the bat.



Additionally, the bat is a nocturnal forager, and construction and demolition activities would not occur during these foraging hours. Therefore, the Proposed Action is highly unlikely to have any impact the lesser long-nosed bat.

#### *Cave Myotis*

The cave myotis could potentially roost in abandoned buildings at Davis-Monthan AFB; however, this is not likely due to absence of preferred habitat (creosote bush, brittlebush, palo verde, and cacti near water) on Base. Bats are known to travel up to 40 miles from roosting sites to forage (USFWS 1995b). The cave myotis forages on insects at night and may occur on the Base as a transient forager. Prior to implementation of any demolition projects where there is the potential for cave myotis to be present, a survey of the site by a qualified biologist would be conducted. Should cave myotis be present, AZGF protocol for managing bats would be implemented. Additionally, the bat is a nocturnal forager, and construction and demolition activities would not occur during these foraging hours. Therefore, the Proposed Action would not be likely to impact the cave myotis.

#### *Pima Pineapple Cactus*

The Pima pineapple cactus occurs within the floristic community types (Sonoran Desertscrub and semi-desert grassland) that occur on Base (Section 3.3.2). During a survey for the Pima pineapple cactus in 2000, no individuals of this species were identified on Base (personal communication, Lisa 2007). The Sonoran desertscrub and semi-desert grassland habitat types primarily occur in the undeveloped portion of the Base. Therefore, it is unlikely that the cactus would be impacted as a result of the Proposed Action.

#### **WETLANDS**

There are no delineated wetlands on Davis-Monthan AFB. Based on the historical data, it is unlikely that any of the proposed construction projects would be sited on newly formed wetlands. Should any wetland indicators be observed during construction activities, work would stop and the Davis-Monthan Environmental Manager would be contacted immediately. There would be no impacts to wetlands with implementation of the Proposed Action.

#### **4.3.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the proposed construction and demolition projects would not be implemented and therefore, there would be no impact to vegetation, wildlife, or special status species. There are no known wetlands on the Base, and therefore there would be no impacts to wetlands.

### **4.4 AIR QUALITY**

#### **4.4.1 Methodology**

Air emissions resulting from the Proposed Action were evaluated in accordance with federal, state, and local air pollution standards and regulations. Air quality impacts from a proposed activity or action would be significant if they:

- increase ambient air pollution concentrations above any NAAQS,

- contribute to an existing violation of any NAAQS,
- interfere with or delay timely attainment of NAAQS, or
- impair visibility within any federally mandated federal Class I area.

The approach to the air quality analysis was to estimate the increase in emission levels due to the Proposed Action.

According to USEPA's General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations in a NAAQS nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required if the Proposed Action occurs within an attainment area. Since Pima County is in maintenance status (i.e., recently achieved attainment) for CO, a conformity determination must be performed if project emissions exceed the *de minimis* threshold for CO 100 TPY.

#### **4.4.2 Impacts**

##### **4.4.2.1 PROPOSED ACTION**

**Construction Emissions.** Emissions during the construction period were quantified to determine the potential impacts on regional air quality. Calculations of VOC, NO<sub>x</sub>, CO, and PM<sub>10</sub> emissions were calculated for the sub-categories of construction, demolition, and grading and paving activities. These were performed using emission factors included in the South Coast Air Quality Management District's (SCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook (SCAQMD 1993), which lists several construction emission factors for different types of buildings being constructed.

Construction emissions were calculated by totaling the gross square footage of the proposed building area and multiplying it by the SCAQMD emission factor for each pollutant. Emission factors include emissions from bringing construction equipment and workers to the site. Depending on the structure built, the analysis used emission factors for the construction of Industrial Buildings and Government Office Buildings. These estimates were converted from the resulting pounds per 1,000 square feet to total tons.

To determine demolition emissions, the square footage of the area to be demolished was converted to cubic feet by multiplying it by an estimated story height of 15 feet. For buildings that may reasonably be assumed to be taller than one story, additional cubic footage was added for each story. The resulting volume was multiplied by the SCAQMD emissions factor for PM<sub>10</sub>, to arrive at the total pounds of emissions for the Proposed Action. This was then converted to total tons.

The final component of the emissions estimation includes fugitive dust emissions from ground disturbance related to paving and grading. The total square footage to be paved was converted to acres, then multiplied by SCAQMD's PM<sub>10</sub> emissions factor. Finally, the emissions for paving in pounds was converted to total tons.

Estimated emissions from construction, demolition, grading, and paving activities under the Proposed Action are presented in Table 4.4-1. The emissions shown would occur over the

duration of the construction period, which is expected to last one calendar year (2008). The calculations for the air quality determination are located in Appendix B.

**Table 4.4-1. Total Emissions Associated with the Davis-Monthan AFB CIP EA - Proposed Action**

<i>Source</i>	EMISSIONS (TONS) <sup>1</sup>				
	VOC	CO	NOX	PM <sub>10</sub>	PM <sub>2.5</sub> <sup>2</sup>
Building Construction	0.47	1.49	6.87	1.25	1.25
Demolition	-	-	-	0.77	0.77
Site Development / Grading	-	-	-	0.34	0.34
<b>TOTAL</b>	<b>0.47</b>	<b>1.49</b>	<b>6.87</b>	<b>2.37</b>	<b>2.37</b>
<b>De Minimis Thresholds For Conformity</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Notes: 1. Duration of construction estimated to be 1 year; Total Tons = Tons/Year

2. It is assumed that all PM<sub>10</sub> emission are emitted as PM<sub>2.5</sub>, to be conservative.

Emissions generated by construction, demolition, and paving projects are temporary in nature and would end when construction is complete. The actual emissions from fugitive dust (PM<sub>10</sub>) would be considerably less than the estimates presented in Table 4.4-1 due to the implementation of control measures in accordance with standard construction practices. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard BMP procedures that could be used to minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle may reduce combustion emissions from construction equipment. An activity permit would be obtained from the Pima County Department of Environmental Quality, Air Quality Division under title 17 of the Pima County Code prior to any construction and/or demolition activities. Vehicular combustion emissions from construction worker commuting may be reduced by carpooling. Table 4.4-1 presents a scenario in which none of the control measures mentioned above are applied and, therefore, annual emissions would be expected to be lower than those shown in Table 4.4-1.

In general, combustive and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality in Pima County. Measures would be implemented to control fugitive dust 24 hours a day, 7 days a week.

The total CO emissions are below the conformity threshold of 100 TPY. A conformity determination, therefore, is not required for this action. In addition, the temporary construction-related emissions of PM<sub>10</sub> and SO<sub>x</sub> are not expected to adversely impact the air quality or visibility in any of the PSD Class I areas in the vicinity of the Base.

To comply with 40 CFR Part 61 Subpart M, National Emissions Standards for Asbestos, a NESHAP notification would be submitted at least 10 working days prior to demolition or renovation of any facility containing regulated ACM.

**Operational Emissions.** Air emissions at Davis-Monthan AFB after the Proposed Action construction is completed are expected, for the most part, to be virtually identical to or less than current operations because the Proposed Action is meant to simply modernize the existing facility in order to support current mission requirements more adequately; the Proposed Action is not meant to accommodate increased activity. Moreover, sources that are removed due to demolition of current facilities would be replaced by similar air emission sources at the new facilities. Given that the existing facilities proposed for demolition are now more than 25 years old, it is likely that the new equipment would be more efficient and have lower emissions than the heating equipment currently present in the buildings. Nevertheless, the installation or modification of any air emission sources, such as gasoline stations, boiler and heaters, emergency generators, paint booths, degreasers, etc., would trigger permitting requirements with the Pima County Department of Environmental Quality and potentially a modification to the Base's synthetic minor operating permit.

Therefore, there are no expected increases in operational emissions as a result of the Proposed Action and operations emissions are not included in the air quality analysis.

#### **4.4.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, existing facilities would remain as is, and no construction or demolition would occur; therefore, there would be no construction emissions and operational emissions would be identical to the current baseline presented in Section 3.4.

### **4.5 NOISE**

#### **4.5.1 Methodology**

Noise impact analyses typically evaluate potential changes to existing noise environments resulting from proposed construction and demolition activities. This consists of changes in noise levels or the exposed human population, as well as noise impacts on wildlife. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased exposure of sensitive receptors to unacceptable noise levels).

#### **4.5.2 Impacts**

##### **4.5.2.1 PROPOSED ACTION**

Vehicles and equipment involved in demolition, facility construction, and finishing work would generate the primary noise from the Proposed Action. The typical noise levels generated by these activities range from 75 to 89 dBA at 50 feet from the source. Assuming that noise from the heavy equipment radiates equally in all directions, the sound intensity diminishes inversely as the square of the distance from the source. Therefore, in a free field (no reflections of sound), the sound pressure level decreases 6 dB with each doubling of the distance from the source. Under most conditions, reflected sound will reduce the attenuation due to distance. Therefore, doubling the distance may only result in a decrease of 4 to 5 dB (American Industrial Hygiene

Association 1986). Table 4.5-1 illustrates the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment.

**Table 4.5-1. Heavy Equipment Noise Levels at 50 Feet**

<i>Equipment Type<sup>1</sup></i>	<i>Number Used<sup>1</sup></i>	<i>Generated Noise Levels, L<sub>p</sub> (dBA)</i>
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Flat-bed Truck (18 Wheel)	1	75
Scraper	1	89
Trenching Machine	1	85

Notes: 1. Estimated based on typical construction scenario

Source: American Industrial Hygiene Association 1986

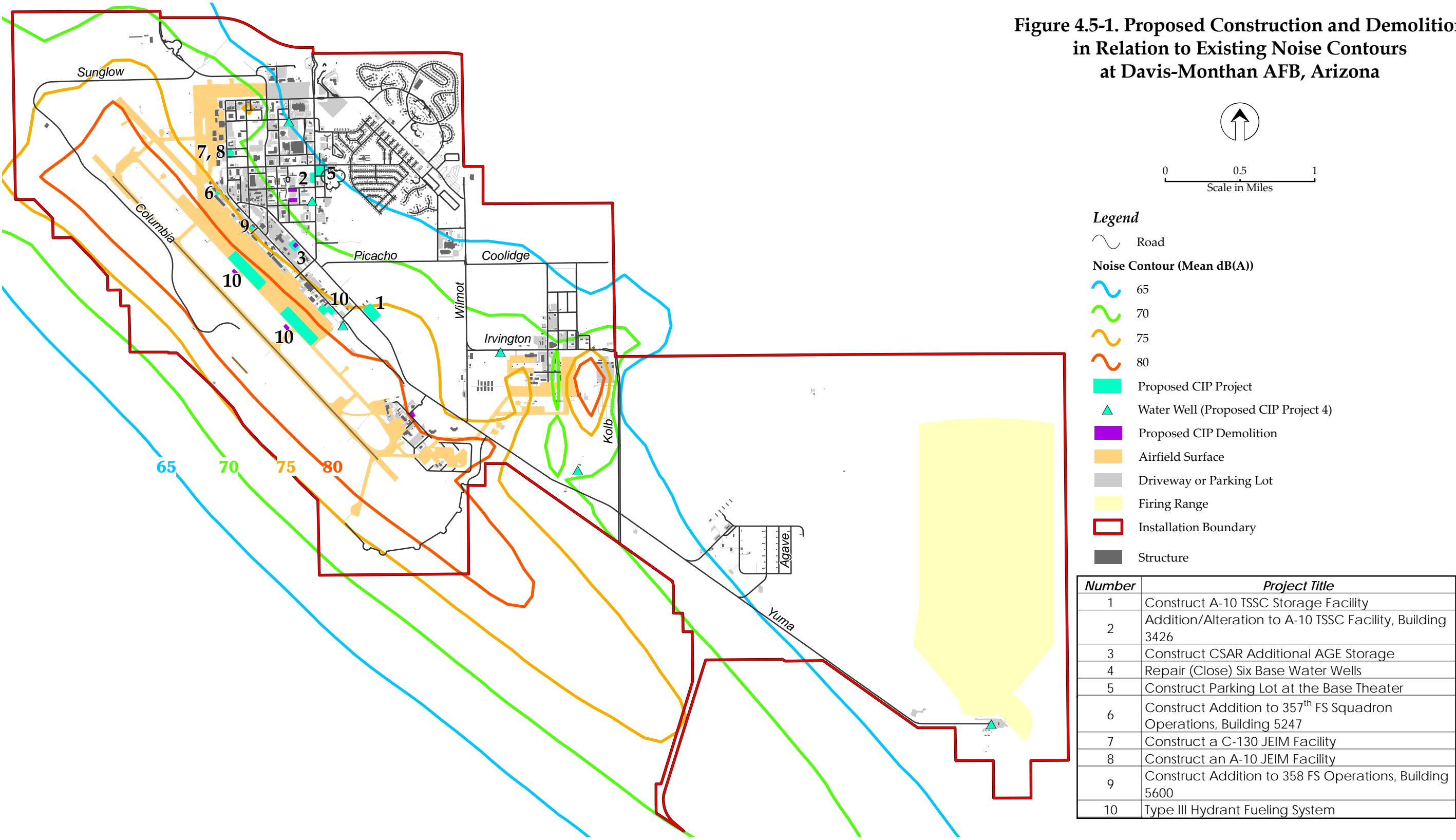
Construction noise would be intermittent and short-term in duration. The distance to off-base sensitive receptors in the vicinity of the short-term construction activities would be greater than 1,000 feet. Assuming a maximum noise level of 89 dBA measured 50 feet from the source, the distances from each of the project areas to off-base sensitive receptors would be sufficient to allow noise levels to naturally attenuate to levels within existing conditions at the installation. An example calculation for the predicted noise level measured 1,000 feet from the source, is presented as follows:

$$A = 20 \log_{10} \left( \frac{d_1}{d_2} \right) = 20 \log_{10} \left( \frac{1,000}{50} \right) = 26.0 \text{ dBA}$$

$$\text{Predicted Noise Level} = L_{\max} - A = 89.0 - 26.0 = 62.0 \text{ dBA}$$

Construction activities would be expected to occur between 7:30 a.m. and 4:30 p.m. In addition, as calculated previously, noise levels at residences in the vicinity of the construction activities would be less than 65 dBA. Minor annoyances to on-base sensitive receptors in the vicinity of the demolition and construction activities associated with exposures to noise exceeding 65 dBA would be of short duration. Furthermore, no changes in aircraft operations are anticipated from implementation of the Proposed Action. Additionally, existing noise levels from existing aircraft operations in the vicinity of the proposed projects would be much louder than most noise generated from demolition and construction activities. The location of the proposed projects in relation to existing noise levels at Davis-Monthan AFB is presented in Figure 4.5-1.

Figure 4.5-1. Proposed Construction and Demolition  
in Relation to Existing Noise Contours  
at Davis-Monthan AFB, Arizona



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In general, construction noise would be intermittent and short-term in duration, and no long-term (recurring) noise impacts would result from implementation of the Proposed Action.

#### **4.5.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, proposed construction and demolition projects would not occur. Noise levels would remain as described in Section 3.5.

### **4.6 LAND USE AND VISUAL RESOURCES**

#### **4.6.1 Methodology**

The methodology to assess impacts on individual land uses requires identifying those uses, as well as affected land use planning and control policies and regulations, and determining the degree to which they would be affected by the proposal. Similarly, visual impacts are assessed by determining how, and to what extent, the Proposed Actions would alter the overall visual character of the area.

#### **4.6.2 Impacts**

##### **4.6.2.1 PROPOSED ACTION**

It is not anticipated that implementation of the Proposed Action would result in any significant impacts to either on-base or off-base land uses (Figure 4.6-1). The proposal would not result in any changes to Base operations, personnel levels, or land use. In fact, elements of the Proposed Action are intended to correct existing minor land use issues and improve the functionality of the Base through the implementation of construction projects associated with the CIP and Base Master Plan. The proposed construction projects are the result of a coordinated land use planning process, and take into account facility siting issues such as adjacent land uses (both on and off the Base), the noise environment, and airfield safety criteria.

Based on an assessment of land use compatibility associated with the Base General Plan (2006), existing land uses on the Base are considered to be generally compatible, with only minor issues. One of the proposed projects involves relocating a facility that is currently located in an area that creates an incompatible land use situation: the existing helipad is in violation of the UFC airfield clearance criteria, and the new site for this facility would eliminate this issue.

It is not anticipated that any of the proposed projects would result in incompatible land use issues with adjacent, off-base land uses. Most of the proposed facilities are located well inside the Base boundary and therefore would have no effect on the off-base environment. In general, the Proposed Action would result in minor positive impacts to land use on-base.

With regard to visual resources, the Base would implement architectural and engineering principles provided in its Design Compatibility Standards for the construction of new buildings. These standards would seek to create a military installation that is architecturally compatible, with design features that lead to visual harmony. Landscaping would follow the principles of the *Design Compatibility Standards, Davis-Monthan AFB* (Davis-Monthan AFB 1998c) to create a landscape that enhances the visual setting of the Base. Any exterior coverings used for new facilities would be in an “earth tone” and consistent with the existing landscaping and



natural environment in the area. Overall, the Proposed Action would result in a minor, positive impact to visual resources.

#### **4.6.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, Davis-Monthan AFB would maintain its existing facilities and would not build the proposed new facilities, as described in Chapter 2.0. Continued use and maintenance of the existing degraded and inefficient facilities and infrastructure would require the 355 FW to continue to operate under unnecessarily inefficient conditions.

### **4.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

#### **4.7.1 Methodology**

In order to assess the potential socioeconomic and environmental justice impacts of the Proposed Action, employment, race, ethnicity, poverty status and age characteristics of populations in the ROI were analyzed, as presented in Section 3.7.2. Potential socioeconomic impacts are assessed in terms of the direct effects of the proposal on the local economy and related effects on population and socioeconomic attributes. With regard to environmental justice issues, community and county figures are compared to regional and state demographics to determine proportional differences

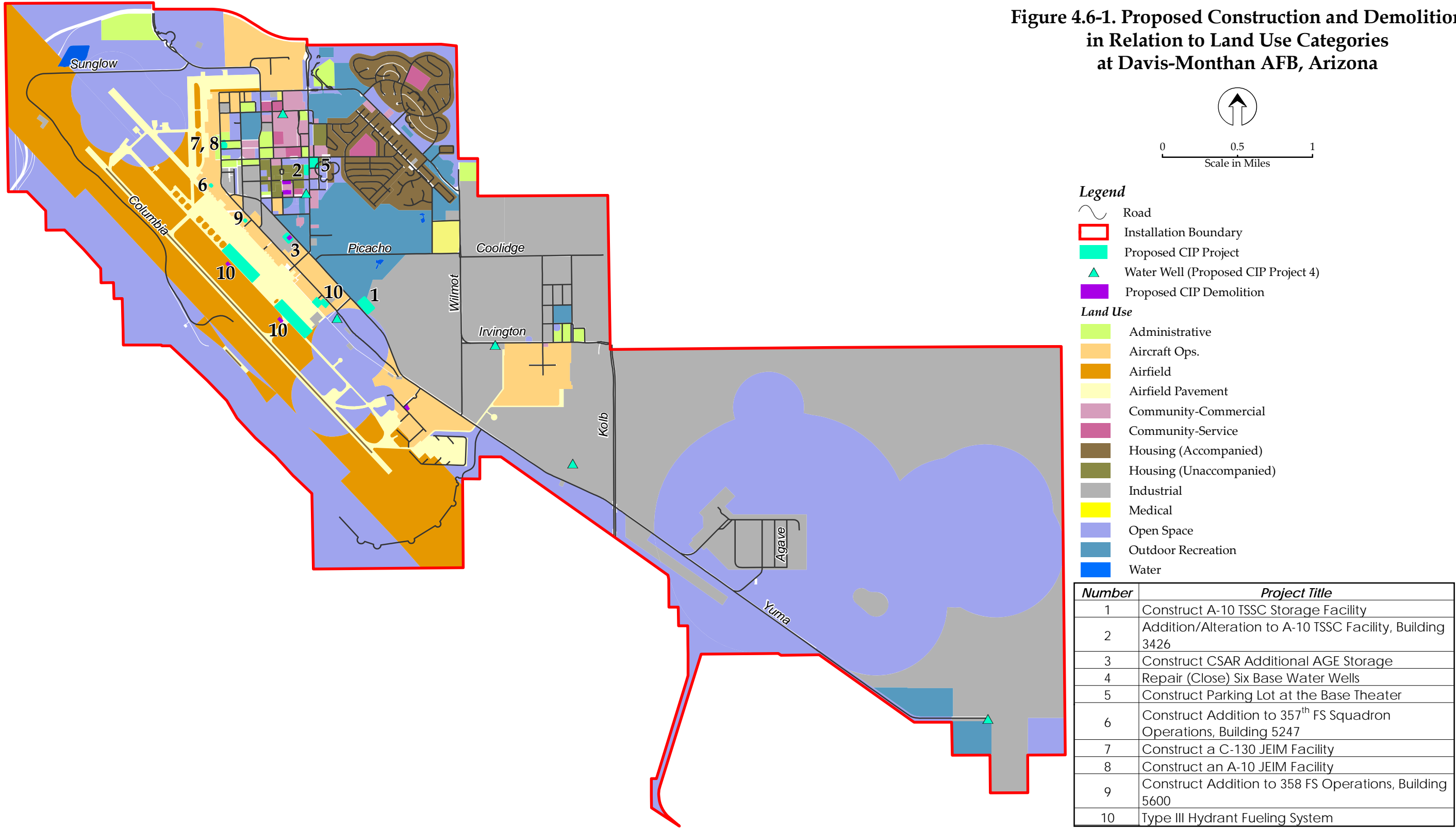
#### **4.7.2 Impacts**

##### **4.7.2.1 PROPOSED ACTION**

Under the Proposed Action, the 355 FW would implement construction and demolition projects associated with the CIP as described in Section 2.1. The total socioeconomic impacts of the proposed construction and demolition projects would amount to an estimated expenditure of \$27.1 million over the entire construction period (five years). The average annual expenditure would therefore be comparable to what was spent in FY 2002 (approximately \$38 million), when other ongoing construction projects are considered. These potential impacts would be temporary and spread out over the course of the time period. No permanent or long-lasting socioeconomic impacts are anticipated as a result of implementation of the Proposed Action. Minor temporary benefits may occur as workers from the surrounding area may be employed to implement the Proposed Action.

The Proposed Action is not expected to create significantly adverse environmental or health impacts. Consequently, no disproportionately high and adverse human health or environmental impacts to minority and/or low-income populations have been identified. In addition, there are no known environmental health or safety risks associated with the Proposed Action that may disproportionately affect children. The construction areas would be restricted, to effectively bar any person, including children, from unauthorized access.

Figure 4.6-1. Proposed Construction and Demolition in Relation to Land Use Categories at Davis-Monthan AFB, Arizona



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#### **4.7.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the 355 FW would maintain their existing facilities. Proposed construction and demolition projects would not be implemented. Failure to implement the proposed improvements would not generate any of the construction-related employment or earnings impacts associated with the Proposed Action. Implementation of the No Action Alternative would not result in any significant adverse socioeconomic or environmental justice impacts.

### **4.8 CULTURAL RESOURCES**

#### **4.8.1 Methodology**

A number of federal regulations and guidelines have been established for the management of cultural resources. Section 106 of the NHPA, as amended, requires federal agencies to take into account the effects of their undertakings on historic properties. Historic properties are cultural resources that are listed in, or eligible for listing in, the NRHP. Eligibility evaluation is the process by which resources are assessed relative to NRHP significance criteria for scientific or historic research, for the general public, and for traditional cultural groups.

Under federal law, impacts to cultural resources may be considered adverse if the resources have been determined eligible for listing in the NRHP or have been identified as important to Native Americans as outlined in AIRFA and EO 13007, *Indian Sacred Sites*. DoD) *American Indian and Alaska Native Policy* (1999) provides guidance for interacting and working with federally-recognized American Indian governments. DoD policy requires that installations provide timely notice to, and consult with, tribal governments prior to taking any actions that may have the potential to significantly affect protected tribal resources, tribal rights, or American Indian lands.

Analysis of potential impacts to cultural resources considers direct impacts that may occur by physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; or neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the types and locations of proposed activity and determining the exact location of cultural resources that could be affected. Indirect impacts generally result from increased use of an area.

#### **4.8.2 Impacts**

##### **4.8.2.1 PROPOSED ACTION**

Impacts to cultural resources are not expected under the Proposed Action. Archaeological surveys of the Base, including the present project area, have identified eight archaeological resources considered ineligible for the NRHP. None of these resources is within, or near, the present project area.

Impacts to architectural resources also are not expected under the Proposed Action. Cold War-era structures and facilities at Davis-Monthan AFB were inventoried in 1994 and evaluated for NRHP eligibility (Davis-Monthan AFB 2004c). Four sites (two alert facilities, one training facility, and one missile complex) were evaluated as eligible to the NRHP. None of these sites are part of the Proposed Action.

The Proposed Action includes additions to, or demolition of, 9 buildings. One of these, Building 4721, was built in 1996. This building is not considered for NRHP eligibility because of its recent construction date and lack of historic context. Eight buildings are of sufficient age and/or were built during the Cold War era (1946-1989). Of these, six structures are proposed for demolition: two Cold War era buildings are 50 years old or older and four date from the more recent period of the Cold War era. The two 50-year old structures (Buildings 206 and 207) are pump stations constructed in 1953 and 1954. Building 133, a storage Facility, will be 50 years old in 2008; two dormitories (Buildings 4220 and 4320) were built in 1968; and another storage facility (Building 4815) was built in 1985. As none of these buildings is eligible for listing on the NRHP, there will be no impact to historic properties as a result of the demolition. Additions will be made to two Cold War-era Squadron Operations buildings that are more than 50 years old. Constructed in 1953, Buildings 5247 and 5600 are not eligible for the NRHP, so there will be no impact to historic properties from the additions.

Construction of new facilities near a number of buildings dating from the Cold War-era, some of which are also older than 50 years, will have no effect because none of these are eligible for the NRHP. These include the Base Theater (Building 4153, built in 1957), Headquarters Group (Building 1226, built in 1983), Building 1237 (owned by U.S. Customs); and the CAT Maintenance Facility (Building 165, built in 1952).

Impacts to traditional resources are not expected under the Proposed Action. Traditional resources have not been identified at the Base. Consultation with the Arizona SHPO has determined that the nearby Tohono O'odham Nation and the Pascua Yaqui Tribe have no concerns associated with the proposed project (personal communication, Lisa 2007).

Compliance with Section 106 of the NHPA, including SHPO would be completed for the project area prior to the project beginning. Contact with the Arizona SHPO has been initiated for this action (refer to Appendix A). In the event of inadvertent discoveries of cultural resources during construction or demolition, all activities at that location would be halted until the find is evaluated by a qualified professional archaeologist in compliance with the Davis-Monthan AFB Integrated Cultural Resources Management Plan (ICRMP) and federal regulation.

#### **4.8.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the CIP construction projects would not take place as proposed. Impacts to cultural resources are not expected under this alternative. Resources would continue to be managed in compliance with federal law, USAF regulation, and the Davis-Monthan AFB ICRMP.

## **4.9 SAFETY**

### **4.9.1 Methodology**

Impacts to safety are assessed according to the potential to increase or decrease safety risks to personnel, the public, and property. Proposal-related activities are considered to determine if additional or unique safety risks are associated with their undertaking. If any proposal-related activity indicated a major variance from existing conditions, it would be considered a safety impact.

### **4.9.2 Impacts**

#### **4.9.2.1 PROPOSED ACTION**

All proposed construction under the Proposed Action would be compatible with existing land uses at each proposed site. Portions of some projects associated with the Proposed Action are located within munitions QD arcs. Specifically, the repair/closure of one Base water well (Well #6) associated with Project #4, would be located within an existing QD arc. Additionally, demolition of Pump Station #207 associated with the construction of Project #10, is located within a QD arc. However, none of these construction or demolition activities or facilities is in conflict with the existing QD arcs, as there would be no inhabited buildings within these areas. No explosives would be used or handled during construction activities. Therefore, no additional risk is expected from the Proposed Action. The locations of the projects associated with QD arcs are presented in Figure 4.9-1.

None of the remaining projects associated with the Proposed Action are within the Base's APZs or CZs, and would not create unsafe conditions or hazards for persons or mission activities at the Base, such as ponding water or trash, unusual light sources, or release of substance into the air. Localized dust at demolition and construction sites would be minor and would be controlled using standard BMP practices.

Coordination would be required between the construction contractors and the Base prior to the implementation of demolition and construction activities. Demolition and construction activities must comply with all Occupational Safety and Health Administration standards to protect workers. This may require contractors to provide Safety Plans that detail safety protocols for all aspects of work. This would include, for example, safe practices on construction sites, a description of required occupational protective gear, emergency procedures, and construction traffic routes. Fencing would be erected around construction sites to restrict access to personnel, the public, or children.

Implementation of the Proposed Action would involve ground activities that may expose workers performing the required demolition and construction to some risk. The U.S. Department of Labor (DOL), Bureau of Labor Statistics maintains data analyzing fatal and non-fatal occupational injuries based on occupation. Due to the varying range of events classified as non-fatal injuries, the considerations described below focus on fatal injuries since they are the most catastrophic. Data are categorized as incidence rates per 100,000 workers employed (on an annual average) in a specific industry (Standard Industrial Code [SIC]).

To assess relative risk associated with the Proposed Action, it was assumed that the industrial classifications of workers involved are the Construction Trades (SIC-15, 16, and 17). Based on DOL data and considerations of worker exposure, the probability of a fatal injury would be statistically predicted to be from 1.2 to 3.1 out of 10,000 (DOL 2005). Although DoD guidelines for assessing risk hazards would categorize the hazard category as “catastrophic” (because a fatality would be involved), the expected frequency of the occurrence would be considered “remote” (MIL-STD-882 1993).

While the potential result must be considered undesirable, relative risk is low. Strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with these demolition and construction activities.

The presence or absence of asbestos and other hazardous materials must be determined in facilities prior to demolition. As appropriate, workers and construction contractors would comply with all regulations governing safe handling and disposal of ACMs and LBP. Demolition or construction activities would not commence until hazardous materials are abated and any required permits, plans, or approvals are in place.

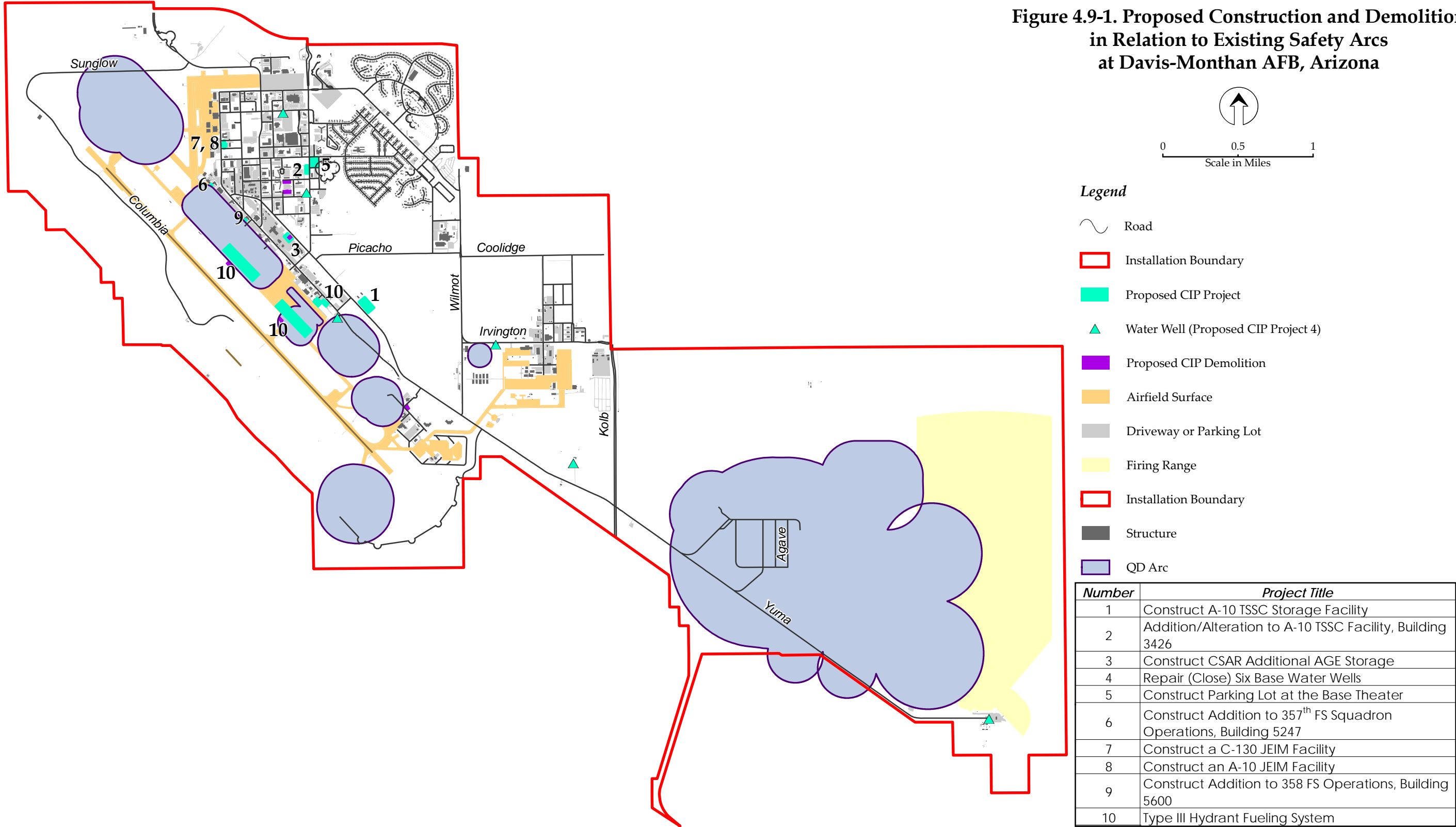
The proposed projects would include measures to enhance and correct AT/FP shortfalls as part of the facility designs. These improvements would correct deficiencies identified at Davis-Monthan AFB and therefore would be a positive benefit from implementation of the Proposed Action.

Providing new facilities that are properly sited with adequate space and modernized supporting infrastructure would generally enhance safety during the conduct of required training, maintenance and support procedures, security functions, and other daily operations conducted by the Base. Improvements to maintenance and other support facilities, providing improvements, an enhanced work environment, and increased maintenance efficiency, would provide positive safety impacts. In general, implementation of the Proposed Action would result in positive impacts to safety.

#### **4.9.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, construction and demolition of the proposed projects would not occur. Management of safety programs would continue under existing Davis-Monthan AFB programs and there would be no environmental impacts as a result of implementation of the No Action Alternative.

Figure 4.9-1. Proposed Construction and Demolition in Relation to Existing Safety Arcs at Davis-Monthan AFB, Arizona





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## **4.10 SOLID AND HAZARDOUS MATERIALS AND WASTES**

### **4.10.1 Methodology**

This section addresses the potential impacts caused by hazardous materials and waste management practices and the impacts of existing contaminated sites on reuse options.

The qualitative and quantitative assessment of impacts from hazardous materials and solid waste management focuses on how and to what degree the alternatives affect hazardous materials usage and management, hazardous waste generation and management, and waste disposal. A substantial increase in the quantity or toxicity of hazardous substances used or generated would be considered potentially significant. Significant impacts could result if a substantial increase in human health risk or environmental exposure was generated at a level that could not be mitigated to acceptable standards.

Regulatory standards and guidelines have been applied in evaluating the potential impacts that may be caused by hazardous materials and wastes. The following criteria were used to identify potential impacts:

- Generation of 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements.
- A spill or release of a reportable quantity of a hazardous substance as defined by the USEPA in 40 CFR Part 302.
- Manufacturing, use, or storage of a compound that requires notifying the pertinent regulatory agency according to Emergency Planning and Community Right-to-Know Act.
- Exposure of the environment or public to any hazardous material and/or waste through release or disposal practices.

### **4.10.2 Impacts**

#### **4.10.2.1 PROPOSED ACTION**

##### ***SOLID WASTE MANAGEMENT***

Construction and demolition of the proposed facilities and pavements identified in Table 2.1-1 and 2.1-3, respectively, would generate solid wastes consisting of concrete, brick, wood, structural steel, glass, and miscellaneous metal building components. These materials would be generated during a five year period from FY 2008 through FY 2012.

Under the Proposed Action 145,797 SF (3.3 acres) would be demolished and 125,153 (2.8 acres) would be constructed generating an estimated 11,542 tons of waste. Total waste expected to be generated was calculated based on a waste generation rate of 155 pounds per square foot of facility demolished and 3.89 pounds per square foot of facility constructed. These waste generation rates were adopted based on the findings of several sampling studies, as

documented in the USEPA's 1998 document titled "Characterization of Building-Related Construction and Demolition Debris in the United States."

Demolition contractors would be directed to recycle materials to the maximum extent possible, thereby reducing the amount of demolition debris disposed in landfills. Materials not suitable for recycling would be taken to a landfill permitted to handle construction debris wastes, such as the City of Tucson's Speedway Landfill. The proper management and recycling or disposal of construction and demolition debris would be the responsibility of construction site contractors. The amount of waste generated by the Proposed Action would not have a significant impact to the operating life of the landfill. No environmental impacts to solid waste management would be expected from the implementation of the Proposed Action.

### ***HAZARDOUS MATERIALS AND WASTE***

Construction and demolition of the proposed facilities may require the use of hazardous materials by contractor personnel. In accordance with the Base's Hazardous Materials Pharmacy procedure, copies of Material Safety Data Sheets for each hazardous material used must be provided to the Base and maintained on the construction site. Project contractors would comply with federal, state, and local environmental laws and would employ affirmative procurement practices when economically and technically feasible.

All hazardous materials and construction debris generated by the proposed projects would be handled, stored and disposed of in accordance with federal state and local regulations and laws. Permits for handling and disposal of hazardous materials are the responsibility of the contractor conducting the work.

Contractor personnel may generate hazardous waste during construction. Storage and disposal of these wastes would be the responsibility of the site contractor. Generation of appreciable amounts of hazardous wastes from projects included in the Proposed Action is not anticipated. However, initial accumulation points encountered in buildings scheduled for demolition would be relocated to the new locations associated with hazardous waste generation. Any soil suspected of contamination, as discovered during the construction or demolition process, would be tested and if found to be contaminated, would be remediated or disposed of in accordance with proper regulations.

In the event of fuel spillage during construction, the contractor would be responsible for its containment, clean up, and related disposal costs. The contractor would have sufficient spill supplies readily available on the pumping vehicle and/or at the site to contain any spillage. In the event of a contractor related release, the contractor would call 911 and then immediately notify the 355 CES/MILCON Programming Element office and take appropriate actions to correct its cause and prevent future occurrences.

### ***STORAGE TANKS***

With the demolition of Pumphouse 206 and 207 it is anticipated that the existing ASTs would be removed. The USTs associated with these two pumphouses would remain in place and continue to provide JP-8 storage for the base. The above ground closed loop wash water recycle

system that provides service to Building 4815, proposed for demolition, may require relocation as a component of the demolition of Building 4815.

#### **ASBESTOS**

If ACMs or LBP are found in or near the demolition areas, then the following Federal and State regulations must be followed.

- *Asbestos Removal and Disposal.* Upon classification as friable or non-friable, all waste ACM would be disposed of in accordance with the Arizona Solid Waste Management Regulations (CAA of 1970, Title 40 NESHAP Regulation) and transported in accordance with USEPA regulations that govern transportation of hazardous materials (EPA 530-F-96-032 *et seq.*). All waste ACM will be transported to the Tangerine Landfill, which is located at 10220 West Tangerine Road and operated by Pima County.
- *LBP Removal and Disposal.* The proposed activities would comply with the DOL, Occupational Safety and Health Administration regulations, and with the USEPA regulations addressing Lead Management and Disposal of Lead-Based Paint Debris (40 CFR Part 257, 258, and 745 ).

#### **ENVIRONMENTAL RESTORATION PROGRAM**

Construction and demolition associated with the Proposed Action would occur on or near ERP DP-51, ST-35, and ST-53 (Figure 4.10-1). One site is undergoing current remediation (ST-35) and the remaining sites have all received No Further Action findings (DP-51 and ST-53). The Base ERP office would request an ACC waiver to construct on or near any of the active ERP sites. Any soil suspected of contamination, as discovered during the development processes, would be tested and if found to be contaminated, would either be remediated or disposed of in accordance with ADEQ regulations. Disposal of contaminated soil would be funded by these construction and demolition projects.

#### **MILITARY MUNITIONS RESPONSE PROGRAM (MMRP)**

There are three proposed construction projects that would occur in the area of closed ranges (Figure 4.10-2). This is not a particularly unusual occurrence, and to facilitate these activities in a safe manner, a waiver would be requested for these activities in the closed ranges. This waiver would be coordinated through the 355 CES/CEVR office and would outline procedures to be taken to safeguard workers in the event that munitions are unearthed (personal communication, Oden 2005).

#### **4.10.2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, proposed construction and/or demolition of the facilities would not occur. Management of solid waste, hazardous wastes, or materials would continue under existing Davis-Monthan AFB programs and there would be no environmental consequences to these resources.

## **4.11 INFRASTRUCTURE**

### **4.11.1 Methodology**

Potential impacts to infrastructure elements at the 355 FW are assessed in terms of effects of the proposed projects on existing service levels, described in Section 3.11 (Infrastructure Existing Conditions). Impacts to transportation and utilities are assessed with respect to the potential for disruption or improvement of current circulation patterns and utility systems, deterioration or improvement of existing levels of service, and changes in existing levels of transportation and utility safety. Impacts may arise from physical changes to circulation or utility corridors, demolition and construction activity, and introduction of construction-related traffic and utility use. Adverse impacts on roadway capacities would be significant if roads with no history of capacity exceedance had to operate at or above their full design capacity as a result of an action. Transportation effects may arise from changes in traffic circulation, delays due to demolition and construction activity, or changes in traffic volumes. Utility system effects may include disruption, degradation, or improvement of existing levels of service or potential change in demand for energy or water resources.

For this analysis, potential infrastructure impacts associated with implementation of the Proposed Action were evaluated. No personnel changes are associated with the action alternatives; therefore no effect on infrastructure demand related to an increase in installation personnel would occur. Potential infrastructure impacts would be related to demolition and construction activity and facility operations after completion.

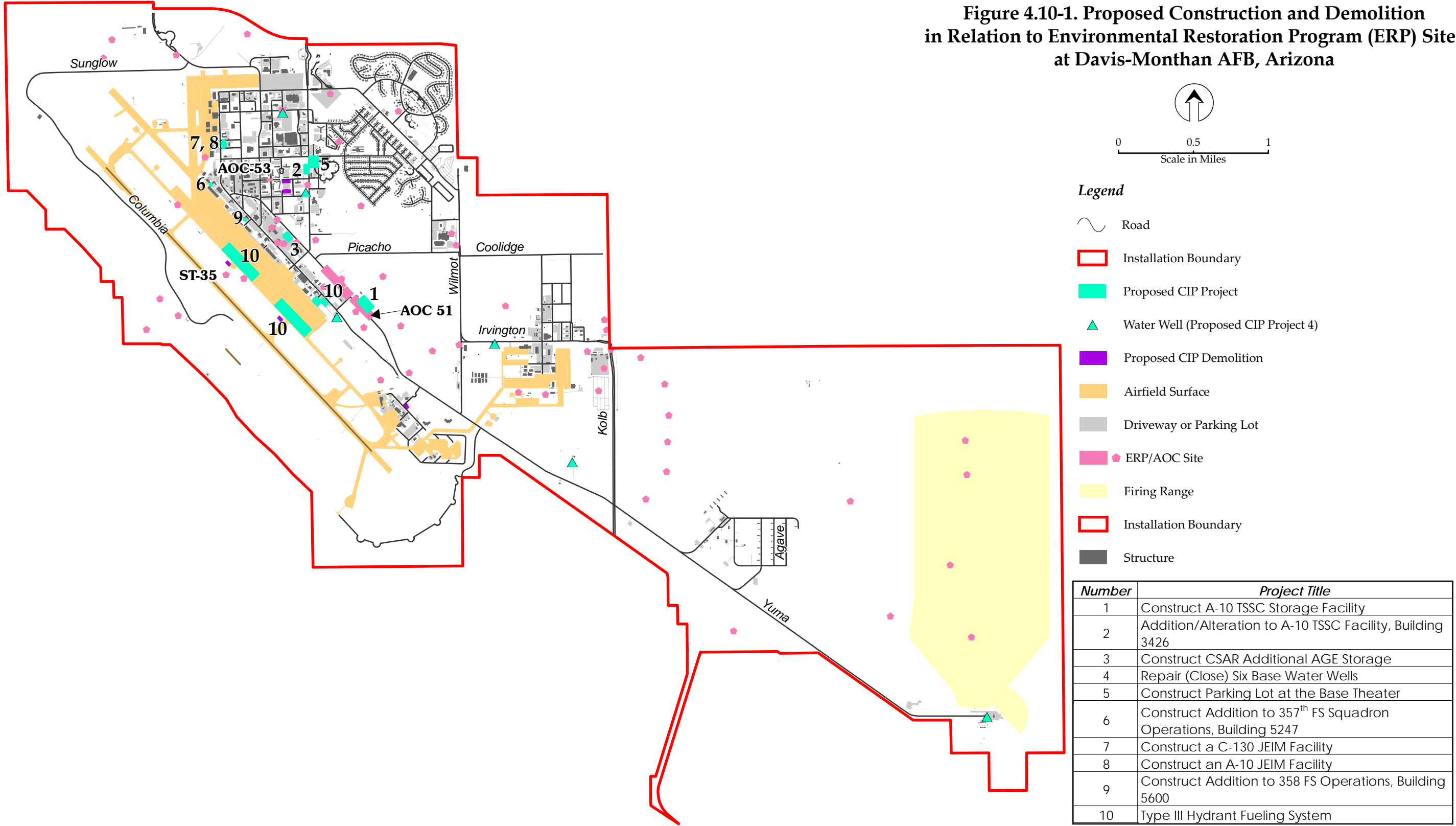
### **4.11.2 Impacts**

#### **4.11.2.1 PROPOSED ACTION**

**Transportation/Parking.** Under the Proposed Action, the Base would implement improvements that would include construction, renovation, and demolition projects that would accommodate the continuously evolving mission of the 355 FW and their tenants. Construction and demolition projects are described in detail in Section 2.2 of this EA.

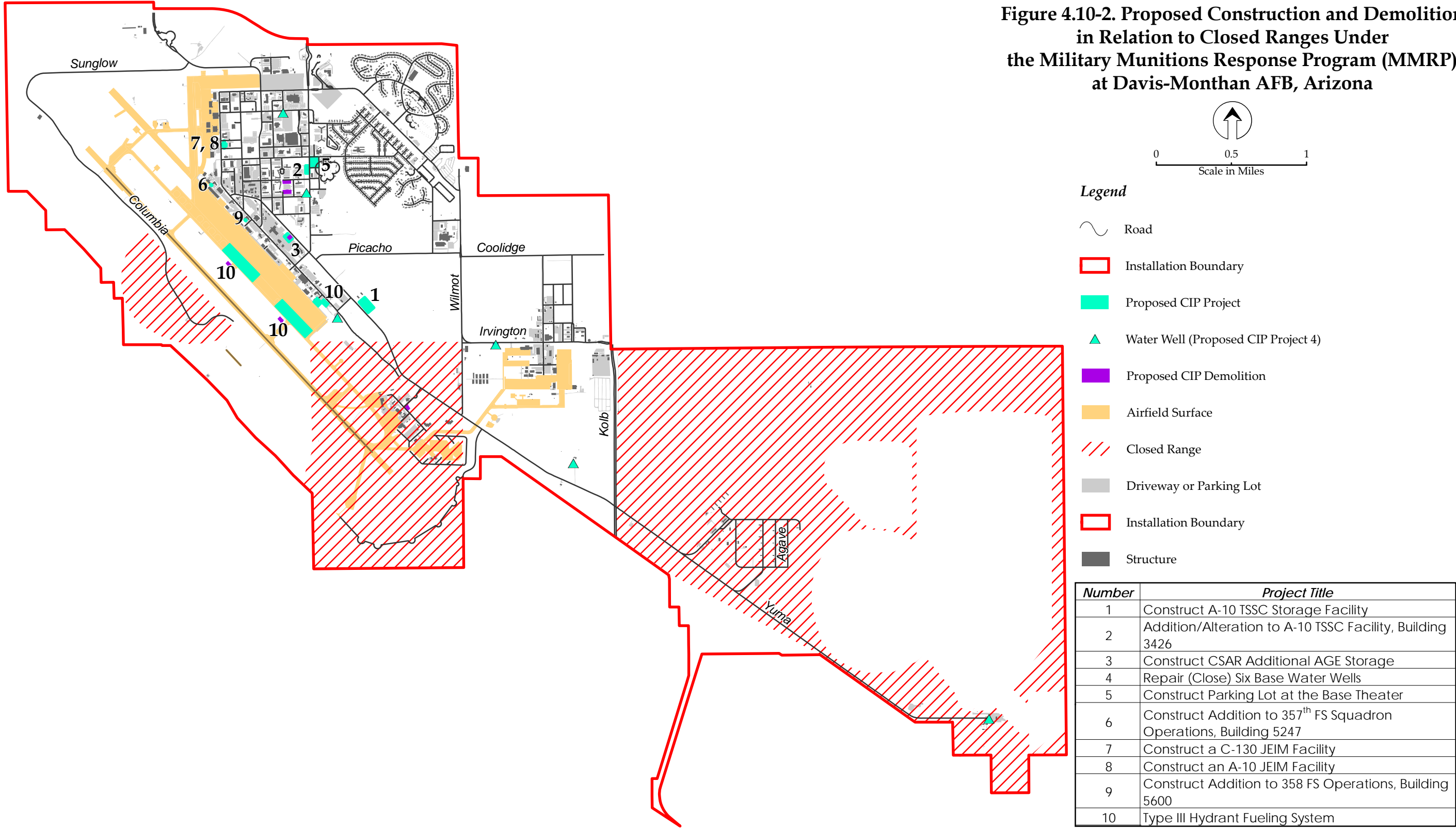
Construction traffic associated with the implementation of the Proposed Action would temporarily increase use of the Base's roadways. Haul routes related to demolition and construction have not been established, but would be routed to avoid Base housing areas, and other noise-sensitive areas as much as practicable. Truck traffic could lead to the degradation of road surfaces over an extended period of use. Construction truck traffic and construction workers commuting to the project sites would generate minor increases in vehicle trips per day on Base roadways and increase congestion at the gates. At project sites, temporary land closures may be necessary during demolition and construction activities. Appropriate signage and detour to maintain access would be provided. Demolition and construction would occur in phases and intermittently, thus, resulting in minor impacts.

Figure 4.10-1. Proposed Construction and Demolition in Relation to Environmental Restoration Program (ERP) Site at Davis-Monthan AFB, Arizona



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Figure 4.10-2. Proposed Construction and Demolition in Relation to Closed Ranges Under the Military Munitions Response Program (MMRP) at Davis-Monthan AFB, Arizona





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The construction of the parking lot at the Base Theater (Building 4153) to meet AT/FP requirements would replace parking spots on a one-to-one basis, resulting in a net gain of zero parking spots. Thus, there would be no long-term impacts to current transportation/parking on the Davis-Monthan AFB.

**Potable Water.** Of the 10 construction projects listed in the Proposed Action, only 3 projects (Projects # 1, 7, and 8) involve the construction of infrastructure that would increase annual potable water requirements. The demand for potable water for dust control during the demolition and construction activities of the Proposed Action would increase minimally. The average daily summertime water consumption at Davis-Monthan AFB is 2,370,000 gallons, which is only 41 percent of the total production capability (Davis-Monthan AFB 2006a). Thus, the capacity of the existing well system is capable of meeting short-term requirements, as well as any minimal increase associated with the proposed construction projects. No adverse impacts are anticipated.

**Wastewater.** No change is anticipated to the generation of wastewater because of the construction or demolition activities planned as part of the Proposed Action. Current wastewater flows are approximately 50 percent of the capacity of the existing sewer system that delivers wastewater to the Pima County treatment facilities and no adverse impacts are anticipated to wastewater facilities.

**Storm Drainage System.** Construction of new building space and other surfaces (parking lot and concrete pads) would result in a net decrease of approximately 0.5 acres of impervious surfaces to Davis-Monthan AFB (including the decrease due to demolitions of existing facilities). As each project is designed and constructed, the potential effects of additional impervious surface and storm water discharge would be evaluated in order to reduce the overall effect on the existing storm water system. With a decrease in impervious surface of less than 1 percent, no substantial impacts are expected to the storm drainage system as a result of the Proposed Action.

Additionally, the proposed demolition and construction activities could affect the quality of storm water runoff through potential increase in soil erosion. These activities can expose soils and during rain storms, storms can pick up soil particles, thereby increasing sediment loading of storm water runoff. However, prior to construction Davis-Monthan AFB would be required to obtain coverage under an AZPDES Construction General Permit with ADEQ and prepare an updated SWPPP to manage storm water associated with construction activity. Strict adherence to state regulations and the SWPPP would reduce any adverse impacts associated with the Proposed Action.

**Electrical System.** Based upon the projected growth rate of electrical power demand, Davis-Monthan AFB has initiated a series of projects to decrease electrical consumption. The Base has entered into a contract with TEP, in which TEP provides up-front capital to fund hardware replacement projects and recoups its investment from the normalized monthly utility bill. Also, the Base plans on reducing power requirements by replacing electricity with natural gas driven equipment (Davis-Monthan AFB 2006a). Under the Proposed Action, a slight increase in electrical use is anticipated as a result of the construction of new facilities. New facilities

associated with proposed construction would be built with more energy efficient design standards and utility systems and therefore no significant impacts are expected.

**Heating and Cooling Systems.** With the implementation of the Proposed Action, a slight increase in heating and cooling demands would be met through the existing capacity in the natural gas system. No adverse impacts are anticipated to this utility.

**Liquid Fuels System.** With the implementation of the Proposed Action, a JP-8 Type III Hydrant Refueling System and a new fuels management facility (Project #10) would be constructed. The current facility, built in the 1950s, is inadequate to support current aircraft as well as projected growth. Additionally, the existing pump houses violate airfield obstruction criteria. As a result of proposed construction, the current inadequate system would be replaced with a new, more efficient, liquid fuel system. Thus, impacts to the liquid fuel system are anticipated to be minor, but positive.

#### **4.11.2.2 NO ACTION ALTERNATIVE**

**Transportation.** Under the No Action Alternative, no facility demolition or construction would occur. Future mission requirements would go unmet and operations would continue under current conditions.

**Utilities.** Under the No Action Alternative, infrastructure upgrades associated with the Proposed Action would not be constructed and deficiencies in the systems could reduce wartime readiness and training. Conditions would remain as described in Section 3.11.2.

## **5.0 CUMULATIVE IMPACTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

### **5.1 CUMULATIVE IMPACTS**

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

Davis-Monthan AFB updates facilities on a continual basis, as necessary. While it is not practical to catalog all minor projects that could occur over the short-term, a list of the major projects in the ROI have been analyzed for the potential to create cumulative environmental impacts. Planning efforts in the ROI include the actions described within this EA, as well as others that are either ongoing or planned over the short-term. Additional projects within the ROI are discussed below.

#### **5.1.1 Past, Present, and Reasonably Foreseeable Actions**

On-going and proposed actions (in addition to those that are a component of this EA) at Davis-Monthan AFB include the following:

On-Going Projects:

- Permanent Headquarters Facility for the 563<sup>rd</sup> Rescue Group and 563<sup>rd</sup> Operations Support Squadron
- Construction of Permanent Headquarters Facility for the 563 RQG and 563 OSS
- Construct Roads and Parking Lot for Site 5 (FBNV850033)
- Modifications to Family Camping (FAMCamp) (FBNV073040)
- Construct School Age Program (FBNV064003)
- Add/Alter Youth Center (FBNV064004)
- Construct EC-139 Hangar (FBNV053002)

Planned Projects for the Foreseeable Future:

- Construct AMARG Aircraft Hangar (FBNV063501)
- Construct Consolidated Packing and Crating Center (FBNV073502)
- Construct Sim Tower Parking Lot, Lavatory, and Break Room (FBNV040105)
- Construct CATM Jogging Trails (Rails to Trails) (FBNV030122)

The projects listed above, as well as the projects analyzed within this EA, have all been coordinated through the Base Community Planning Department, and have all been incorporated into the Base Master Plan. The projects listed above have either already gone through the NEPA process, or are currently undergoing NEPA analysis.

As an active military installation, Davis-Monthan AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances, and as such, requires new construction, facility improvements, infrastructure upgrades, and ongoing maintenance and repairs on a continual basis. Although such known construction and upgrades are a part of the analysis contained in this EA, some future requirements cannot be predicted. As those requirements surface, future NEPA analysis will be conducted, as necessary.

The goals of the CIP analyzed in this EA are to document the known projects required at Davis-Monthan AFB over the next five years in support of their mission; provide an environmental analysis of these projects; and prepare to implement the appropriate facility improvements as funds become available. It is quite likely that during the course of the next five years, additional projects not included in this analysis may be required. The nature of the military today is that missions are very dynamic and planners at the Base level must be proactive in addressing potential impacts associated with these changes. One of the primary purposes of preparing this EA is to streamline the NEPA process, where appropriate, by preparing a comprehensive document (herein) that will support future tiering of environmental analyses and application of categorical exclusions. Should additional projects be required, a checklist has been provided that should facilitate tiering and/or application of categorical exclusions. If the Base planner can ensure that the following conditions are met, then it could be appropriate to use the existing EA for application of a categorical exclusion:

- Wetlands and/or waters of the U.S. would not be impacted.
- Federally and/or state listed species of concern, and/or migratory birds would not be impacted.
- ERP sites would not be impacted.
- Historic properties, sites, Native American traditional resources would not be impacted.
- No unapproved facilities would be located within QD arcs.
- NPDES permit would be updated, as necessary.
- Federal and/or State AAQs would not be exceeded.
- There would be no adverse impacts to disadvantaged and/or youth populations.

Should the categorical exclusion not be appropriate, then the existing EA would be used for tiering purposes to prepare additional NEPA analysis.

### 5.1.2 Analysis of Cumulative Impacts

**Earth Resources.** In addition to the 6.2 acres of surface disturbance over the course of the five-year construction program associated with the CIP, an additional amount of surface disturbance could result from recently completed, on-going, and future construction at Davis-Monthan AFB. The grading of existing soil and placement of structural fill for new facilities would not substantially alter existing soil conditions at the Base, because to a large extent, the construction described above is planned in areas where surface disturbance has previously occurred. BMPs would be used to limit soil movement, stabilize runoff, and control sedimentation. Cumulative impacts to earth resources are expected to be minimal.

**Water Resources.** Although there is a net decrease of 0.5 acres of impervious surface at Davis-Monthan AFB as a result of the five-year construction program associated with the CIP, an additional amount of impervious surface would be added as a result of the projects described in Section 5.1.1. To a large extent, the construction described above is planned within areas which are largely impervious surface already. The Base is updating their SWPPP to include these projects and has obtained or will obtain, as appropriate, coverage under Construction General Permit AZG2003-001 for storm water. Adherence to the requirements of the permit would include implementation of BMPs to minimize the potential for exposed soils or other contaminants from construction activities to reach nearby surface waters. Cumulative impacts to water resources are expected to be minimal.

**Biological Resources.** In general, the Proposed Action and the projects listed in Section 5.1.1 are at sites that are highly altered by man. There are no sensitive plant species known to occur on Base, and animal species that would be found in specific project areas are well adapted to the human environment. The Base will coordinate with AZGF regarding burrowing owls and cave myotis, should there be a need. Cumulative impacts to biological resources are expected to be minimal.

**Air Quality.** In general, combustive and fugitive dust emissions from proposed CIP construction activities, as well as those activities described in Section 5.1.1, would produce localized, elevated air pollutant concentrations that would occur for a short duration and would not result in any long-term impacts on the air quality of Pima County (AQCR 015). Cumulative impacts to air quality in the County are expected to be minimal.

**Noise.** Construction noise emanating off-site as a result of the Proposed Action and the activities described in Section 5.1.1 would probably be noticeable in the immediate site vicinity, but would not be expected to create adverse impacts. The acoustic environment on and near Davis-Monthan AFB is expected to remain relatively unchanged from existing conditions. Cumulative impacts from noise are expected to be minimal.

**Land Use/Visual Resources.** The proposed construction projects associated with the CIP as well as those described in Section 5.1.1 are expected to enhance Base planning and compatibility of functions on Base. Some existing incompatibilities would be corrected. Land use off-base is not expected to be impacted. Visual resources are generally not expected to be impacted. Cumulative impacts to land use and visual resources are expected to be minimal.

***Socioeconomics/Environmental Justice.*** There are no long-term changes in Base population and/or employment as a result of implementation of the CIP or the projects described in Section 5.1.1. Additionally, these projects are not expected to create adverse environmental or health effects, and therefore no disproportionately high or adverse impacts to minority, low-income, or youth populations are expected. Cumulative impacts to socioeconomics and environmental justice are expected to be minimal.

***Cultural Resources.*** Activities associated with the CIP and the projects described in Section 5.1.1 are not expected to impact archaeological or traditional resources. All facility demolitions and modifications have been coordinated with the Base Cultural Resource Manager and the SHPO, and have been determined to be ineligible for inclusion in the NRHP. Impacts to traditional cultural resources are not expected. Cumulative impacts to cultural resources are expected to be minimal.

***Safety.*** Implementation of the Proposed Action and the activities described in Section 5.1.1 do involve ground activities that may expose workers performing the required site preparation, grading, and building construction to some risk. Strict adherence to all applicable occupational safety requirements would minimize the relatively low risk associated with these construction activities. The proposed projects would include measures to enhance and correct AT/FP shortfalls as part of the facility designs. Cumulative impacts to safety are expected to be minimal.

***Hazardous Materials and Waste Management.*** The proposed construction and demolition projects associated with the CIP as well as those described in Section 5.1.1 would generate construction and demolition waste that would be recycled and/or taken to the local landfill, as appropriate. There are no capacity issues with the existing landfills. Hazardous materials and wastes would be handled, stored and disposed of in accordance with applicable regulations. Any ACM, LBP, or contaminated soils associated with ERP sites would be removed and disposed of per applicable regulations. Cumulative impacts to hazardous materials and waste management are expected to be minimal.

***Infrastructure.*** The proposed construction and demolition projects associated with the CIP as well as those described in Section 5.1.1 would result in some temporary interruption of utility services and minor hindrance of transportation and circulation during construction activities. These impacts would be temporary, occurring only for the duration of the construction period. In general, infrastructure at Davis-Monthan AFB would improve under these actions, as there would be some upgrades to existing utilities. Cumulative impacts to infrastructure are expected to be minimal.

## **5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

NEPA CEQ regulations require environmental analyses to identify “...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented” (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have

on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of non-renewable resources.

The Proposed Action would not have irreversible impacts because future options for using this site would remain possible. The vast majority of Davis-Monthan AFB is undeveloped, and the Proposed Action would only lead to a slight increase in the amount of newly developed land. The site could be used for alternative uses in the future, ranging from natural open space to urban development. No loss of future options would occur.

The primary irretrievable impacts of the Proposed Action would involve the use of energy, labor, materials and funds, and the conversion of some lands from an undeveloped condition through the construction of buildings and facilities. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.



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Years of Experience: 21

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**APPENDIX A**  
**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION**  
**FOR ENVIRONMENTAL PLANNING (IICEP)**



**Davis-Monthan AFB IICEP Distribution List**

United States Environmental Protection  
Agency  
Region 9  
75 Hawthorne Street  
San Francisco, CA, 94105  
Phone: 415-947-8000  
Toll free: 866-EPA-WEST

The Honorable Janet Napolitano  
Governor of Arizona  
1700 W Washington Street  
Phoenix, Arizona 85007  
Phone: 602-542-4331  
Fax: 602-542-1381

Arizona Department of Agriculture  
1688 W Adams  
Phoenix, AZ 85007  
Phone: 602-542-4373

Arizona Department of Environmental  
Quality Southern Regional Office  
Attn: Assistant Director, David Esposito  
400 W Congress, Suite 433  
Tucson, AZ 85701  
Phone: 520-628-6733  
Toll free: 888-271-9302  
Fax: 520-628-6745

Natural Resources Conservation Service  
Tucson Service Center  
4650 N Highway Drive  
Tucson, AZ 85705-1914  
Phone: 520-887-4505, ext 4  
Fax: 520-888-1467

Arizona Water Protection Fund  
C/O Department of Water Resources  
Attn: Rodney Held  
500 N Third Street  
Phoenix, AZ 85004  
Phone: 602-417-2200, ext 7012  
Fax: 602-417-2423

Arizona Department of Water Resources  
Tucson Active Management Area (AMA)  
400 W Congress, Suite 518  
Tucson, AZ 85701  
Phone: 520-770-3800  
Fax: 520-628-6759

Arizona Attorney General  
Terry Goddard  
Office of the Attorney General  
Department of Law  
1275 W Washington Street  
Phoenix, AZ 85007  
Phone: 602-542-5025  
Fax: 602-542-4085

Water Protection Fund  
US Bureau Of Reclamation  
Phoenix Area Office (PXA0)  
2222 W Dunlap Avenue, Suite 100  
Phoenix Arizona, 85021  
Phone: 602-216-3999

US Army Corps of Engineers  
Attn: Ms. Marjory Blaine  
Regulatory Branch, Tucson Project Office  
5205 E Comanche Street  
Tucson, AZ 85707

Tohono O'odham Nation  
P.O. Box 837  
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Town of Sahuarita Planning  
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Planning  
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Tucson, AZ 85721-0300

Pima Department of Environmental Quality  
150 W Congress Street  
Tucson, AZ 85701-1332  
Phone: 520-740-3340  
Fax: 520-882-770

Arizona Department of Environmental  
Quality  
Office of Administrative Council  
Attn: Henry Darwin  
1110 West Washington Street  
Phoenix, AZ 85007

James Garrison  
SHPO  
Arizona State Parks  
1300 W. Washington  
Phoenix, AZ 85007  
Phone: 602-542-4009

**SAMPLE IICEP LETTER**



November 29, 2007

United States Environmental Protection Agency  
Region 9  
75 Hawthorne Street  
San Francisco, CA 94105

Dear Sir/Madam:

The 355<sup>th</sup> Wing of Davis-Monthan Air Force Base (AFB) has prepared a draft Environmental Assessment (EA) for the proposed construction and demolition projects associated with their five-year Capital Improvements Program (CIP). The draft EA is provided for your review and comment (Attachment 1).

The environmental analysis for the Proposed Action is being conducted by the U.S. Air Force in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. Please provide any comments you may have by January 2, 2008.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Ms. Kate L. Bartz. She can be reached at (520) 616-2506. Please forward your written comments to Ms. Bartz, in care of SAIC, 333 N. Wilmot, Suite 400, Tucson, Arizona, 85711, or fax to Ms. Bartz at (520) 616-2540, or email to Kate.L.Bartz@SAIC.com. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Kate Bartz", with a stylized flourish at the end.

Kate L. Bartz  
Project Manager, SAIC

Attachment:

1. Draft EA/FONSI for Environmental Assessment for Capital Improvements Program (CIP)





---

**From:** Teresa Sobolewski [mailto:Teresa.Sobolewski@deq.pima.gov]

**Sent:** Monday, December 03, 2007 4:17 PM

**To:** Bartz, Kate L.

**Subject:** Comments on the EA for DM's CIP

Ms. Bartz,

From the Air Quality Program the only comments are just reiterating what has already been said in the EA: all construction beyond permitting thresholds must have activity permits (attached). Anytime a facility will be demolished or have asbestos removed Pima County must be notified greater than 10 business days in advance. Finally, if any of the new facilities trigger a change in your emissions inventory you should contact our permitting section to modify your permit(s) as required.

Please see our website ([www.deq.pima.gov](http://www.deq.pima.gov)) for the most current forms.

Thank you...please call with any questions,  
Teresa

Teresa Sobolewski  
Air Program Manager  
Pima County Department of Environmental Quality  
33 N. Stone Ave, Suite 730  
Tucson, AZ 85701  
[teresa.sobolewski@deq.pima.gov](mailto:teresa.sobolewski@deq.pima.gov)  
[www.deq.pima.gov](http://www.deq.pima.gov)  
243-7320

**Table 17.12.540****FUGITIVE DUST ACTIVITY PERMIT FEES SCHEDULE  
(effective July 5, 2007)**

S.S. <sup>1</sup>	ACTIVITY	RATE COMPONENTS
A	Land stripping and/or Earthmoving	>1-2 Acres \$ 100.00 >2-10 Acres \$ 500.00 >10-40 Acres \$ 1,500.00 >40+ Acres \$ 3,000.00
B	Trenching	300-500 Ft. \$ 75.00 501-1500 Ft. \$ 200.00 1501-5000 Ft. \$ 400.00 5001+ Ft. \$ 800.00
C	Road Construction	50-1000 Ft. \$ 50.00 1001-3000 Ft. \$ 250.00 3001-6000 Ft. \$ 500.00 6001+ Ft. \$ 1,000.00
D	Blasting	\$ 25.00
E	Multiple Activity Permit	>1-10 Acres \$ 625.00 >10-40 Acres \$ 2,000.00 >40+ Acres \$ 4,000.00
<b>NESHAP Activity Permit</b>		
F	Demolition or Renovation of NESHAP Facility	\$420.00
<sup>1</sup> Sub-schedule for identification only.		

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**From:** Blaine, Marjorie E SPL [mailto:Marjorie.E.Blaine@usace.army.mil]  
**Sent:** Thursday, December 13, 2007 6:21 PM  
**To:** Bartz, Kate L.  
**Subject:** Comments on Draft EA for DMAFB CIP

Kate:

Thank you for sending the draft EA for the DMAFB CIP. I have the following comments:

1. Page 2-15 paragraph 2.5.2.4: This paragraph is poorly worded regarding Section 404 of the Clean Water Act and the statements made are not correct. I would recommend you use something more in line with "The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the U.S. including wetlands under Section 404 of the Clean Water Act. Waters of the U.S. include any waterbody or watercourse which has been determined to be regulated under Section 404 using the *Rapanos Guidance* of June 5, 2007 and may include ephemeral washes, drainage ditches, intermittent and perennial watercourses, and wetlands." The Corps does not regulate activities "near streams" unless what is near the stream is a wetland. Also, it is very misleading because it leads one to believe that only work in streams or wetlands requires a permit. Finally, since this section deals with "Existing Conditions", you should be describing what types of waters of the U.S. may exist at DMAFB.

2. Page 4-2, Section 4-2: The Corps has not adopted EPA regulations. The Corps has their own regulations for Section 404 under 33 CFR 320-330. The Corps also uses EPA's regs at 40 CFR 230 to determine the least environmentally damaging, practicable alternative for a project requiring an individual permit.

3. Page 4-5, 2nd paragraph: "close proximity" is redundant....It is more appropriate to remove "close" and just state projects would be located "...in proximity to.....". I suggest you might want to mention that, if it is anticipated that work may affect watercourses, a jurisdictional delineation under the appropriate guidance will be conducted to determine if the watercourses are regulated under Section 404. You could go on to state that DMAFB would then coordinate with the Corps to obtain any required Section 404 permits. There is no such thing as a "Finding of No Practicable Alternative". You should probably omit the part about the NEPA documentation because some of our projects do not require a NEPA document and those that do require it, the NEPA document is done by the Corps not the applicant. In fact, I would just end it with the statement that DMAFB will coordinate with the Corps to obtain any required Section 404 permits.

I hope these comments are helpful to you in correctly addressing Section 404 issues. If you have any questions or would like me to review rewritten sections prior to the final EA, I would be happy to do so.

Thank you!

*Marjorie Blaine*

Senior Project Manager/Biologist

U.S. Army Corps of Engineers

Tucson Project Office, Regulatory Division

5205 E. Comanche Street

Tucson, AZ 85707

(520)584-1684 (phone)

(520)584-1690 (fax)



# United States Department of the Interior

U.S. Fish and Wildlife Service  
Arizona Ecological Services Field Office  
2321 West Royal Palm Road, Suite 103  
Phoenix, Arizona 85021-4951  
Telephone: (602) 242-0210 Fax: (602) 242-2513



In Reply Refer to:

AESO/SE  
22410-2008-TA-0112

December 20, 2007

Ms. Kate L. Bartz  
SAIC  
333 North Wilmot, Suite 400  
Tucson, Arizona 85711

Dear Ms. Bartz:

Thank you for your correspondence of November 29, 2007, regarding Davis-Monthan Air Force Base's Capital Improvements Program. This letter documents our response to your request for review and comment on the Draft Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) related to potential effects to species listed as endangered or threatened under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

We agree with the resource assessment found in the draft EA and FONSI, and do not believe that any endangered, threatened, or candidate species or critical habitat will be affected by these projects; nor are the projects likely to jeopardize the continued existence of any proposed species or adversely modify any proposed critical habitat. We support the recommendations made in the draft FONSI and on pages 4-9 and 4-10 related to surveys by a biologist prior to initiation of the projects to determine the presence or absence of species of interest (bats, burrowing owls, raptor nests, etc.), and an appropriate course of action if they are found to be present. Such actions will limit the potential for adverse effects to these wildlife species of concern.

Should circumstances regarding this project change from the information provided to us, we recommend that you contact us for further review. If you have additional questions, please contact Scott Richardson at (520) 670-6150 [x 242] or Sherry Barrett at [x 223]. Thank you for your consideration of endangered species.

Sincerely,

  
Steven L. Spangle  
Field Supervisor

Ms. Kate L. Bartz

2

cc: Environmental and Cultural Resources, Davis-Monthan Air Force Base, Tucson, AZ  
(Attn: Gwen Lisa)  
Army Corps of Engineers, Tucson, AZ (Attn: Marjorie Blaine)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
Habitat Branch Chief, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Dept., Tucson, AZ

C:\Documents and Settings\scottrichardson\My Documents\Technical Assistance\DMAFBCIP.SAIC.ta.sr.doc





Janet Napolitano  
Governor

## ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • [www.azdeq.gov](http://www.azdeq.gov)



Stephen A. Owens  
Director

February 6, 2008

Ms. Kate L. Bartz, Project Manager  
SAIC  
333 North Wilmot, Suite 400  
Tucson, Arizona 85711

Location: Pima County, AZ: Draft EA – Davis-Monthan AFB Proposed Demolition Projects Under 5-Year Capital Improvement Program

Dear Ms. Bartz:

The Air Quality Division has reviewed the proposed project, as described in your letter, dated November 29, 2007, that was submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act Section 176(c)(1); 58 Federal Register 63214-63259; Title 40 Code of Federal Regulations Part 51, Subpart W §§ 51.850-51.860; Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-160; and Arizona Administrative Code R18-2-348 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason(s):

- Not in a Nonattainment or Maintenance area

Nevertheless, considering prevailing winds and the magnitude and duration of the projects described, to comply with other applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided:

### PREVENT RELEASE OF REGULATED ASBESTOS FIBERS

Title 40 Code of Federal Regulations § 61.145 contains requirements to survey for the presence of asbestos at each demolition or renovation activity prior to demolition or renovation (Asbestos National Emission Standards for Hazardous Air Pollutants). A 10-day advance notification of demolition is required for every demolition project (unless at an exempt facility) and for any renovation project that would disturb at least 260 linear feet, on pipes, at least 160 square feet on other components, or at least 35 cubic feet where length or area cannot be measured. A permit may be required. To determine applicability of asbestos survey and work practice standards, please contact the Environmental Program Specialist, Air Quality Division Compliance Section at (602) 771-2333.

### REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

This action, plan or activity may temporarily increase ambient particulate matter (dust) levels. Particulate matter 10 microns in size and smaller can penetrate the lungs of human beings and animals and is subject to a National Ambient Air Quality Standard (NAAQS) to protect public health and welfare. Particulate matter 2.5 microns in size and smaller is difficult for lungs to expel and has been linked to increases in

Northern Regional Office  
1801 W. Route 66 • Suite 117 • Flagstaff, AZ  
86001  
(928) 779-0313

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ  
85701  
(520) 628-6733



Kate L. Bartz  
February 6, 2008  
Page 2

death rates; heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections; asthma attacks and cardiopulmonary obstructive disease (COPD) aggravation. It is also subject to a NAAQS.

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

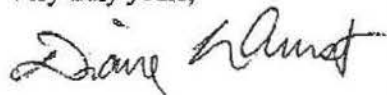
- I. Site Preparation and Construction
  - A. Minimize land disturbance;
  - B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air
  - C. Cover trucks when hauling soil;
  - D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
  - E. Stabilize the surface of soil piles; and
  - F. Create windbreaks
- II. Site Restoration
  - A. Revegetate any disturbed land not used;
  - B. Remove unused material; and
  - C. Remove soil piles via covered trucks.

The following rules applicable to reducing dust during construction, demolition and earth moving activities are enclosed:

- Arizona Administrative Code R18-2-604 through -607
- Arizona Administrative Code R18-2-804
- Pima County Code Chapter 17.16 Article III

Should you have further questions, please do not hesitate to call Dave Biddle, of the Planning Section Staff, at (602) 771-2376.

Very truly yours,



Diane L. Arnst, Manager  
Air Quality Planning Section

Enclosures

cc: Henry R. Darwin, EV Administrative Counsel  
David A. Biddle, Environmental Program Specialist  
File No. 175655

- c. If the burning would occur at a solid waste facility in violation of 40 CFR 258.24 and the Director has not issued a variance under A.R.S. § 49-763.01.
- E. Open outdoor fires of dangerous material. A fire set for the disposal of a dangerous material is allowed by the provisions of this Section, when the material is too dangerous to store and transport, and the Director has issued a permit for the fire. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The Director shall permit fires for the disposal of dangerous materials only when no safe alternative method of disposal exists, and burning the materials does not result in the emission of hazardous or toxic substances either directly or as a product of combustion in amounts that will endanger health or safety.
- F. Open outdoor fires of household waste. An open outdoor fire for the disposal of household waste is allowed by provisions of this Section when permitted in writing by the Director or a delegated authority. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The permittee shall conduct open outdoor fires of household waste in an approved waste burner and shall either:
1. Burn household waste generated on-site on farms or ranches of 40 acres or more where no household waste collection or disposal service is available; or
  2. Burn household waste generated on-site where no household waste collection and disposal service is available and where the nearest other dwelling unit is at least 500 feet away.
- G. Permits issued by a delegated authority. The Director may delegate authority for the issuance of open burning permits to a county, city, town, air pollution control district, or fire district. A delegated authority may not issue a permit for its own open burning activity. The Director shall not delegate authority to issue permits to burn dangerous material under subsection (E). A county, city, town, air pollution control district, or fire district with delegated authority from the Director may assign that authority to one or more private fire protection service providers that perform fire protection services within the county, city, town, air pollution control district, or fire district. A private fire protection provider shall not directly or indirectly condition the issuance of open burning permits on the applicant being a customer. Permits issued under this subsection shall comply with the requirements in subsection (D)(3) and be in a format prescribed by the Director. Each delegated authority shall:
1. Maintain a copy of each permit issued for the previous five years available for inspection by the Director;
  2. For each permit currently issued, have a means of contacting the person authorized by the permit to set an open fire if an order to extinguish open burning is issued; and
  3. Annually submit to the Director by May 15 a record of daily burn activity, excluding household waste burn permits, on a form provided by the Director for the previous calendar year containing the information required in subsections (D)(3)(e) and (D)(3)(f).
- H. The Director shall hold an annual public meeting for interested parties to review operations of the open outdoor fire program and discuss emission reduction techniques.
- I. Nothing in this Section is intended to permit any practice that is a violation of any statute, ordinance, rule, or regulation.

#### Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Correction, subsection (C) repealed effective October 2, 1979, not shown (Supp. 80-1). Former Section R9-3-602 renumbered without change as Section R18-2-602 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-602 renumbered to R18-2-802, new Section R18-2-602 renumbered from R18-2-401 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 10 A.A.R. 388, effective March 16, 2004 (Supp. 04-1).

#### R18-2-603. Repealed

#### Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-603 renumbered without change as Section R18-2-603 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-603 renumbered to R18-2-803, new Section R18-2-603 renumbered from R18-2-403 effective November 15, 1993 (Supp. 93-4). Repealed effective October 8, 1996 (Supp. 96-4).

#### → R18-2-604. Open Areas, Dry Washes, or Riverbeds

- A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.
- B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.
- C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and 3-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

#### Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-604 renumbered without change as Section R18-2-604 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-604 renumbered to R18-2-804, new Section R18-2-604 renumbered from R18-2-404 and amended effective November 15, 1993 (Supp. 93-4).



→ **R18-2-605. Roadways and Streets**

- A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.
- B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

**Historical Note**

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-605 renumbered without change as Section R18-2-605 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-605 renumbered to R18-2-805, new Section R18-2-605 renumbered from R18-2-405 effective November 15, 1993 (Supp. 93-4).

→ **R18-2-606. Material Handling**

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

**Historical Note**

Section R18-2-606 renumbered from R18-2-406 effective November 15, 1993 (Supp. 93-4).

→ **R18-2-607. Storage Piles**

- A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.
- B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

**Historical Note**

Section R18-2-607 renumbered from R18-2-407 effective November 15, 1993 (Supp. 93-4).

**R18-2-608. Mineral Tailings**

No person shall cause, suffer, allow, or permit construction of mineral tailing piles without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

**Historical Note**

Section R18-2-608 renumbered from R18-2-408, new Section R18-2-408 adopted effective November 15, 1993 (Supp. 93-4).

**R18-2-609. Agricultural Practices**

A person shall not cause, suffer, allow, or permit the performance of agricultural practices outside the Phoenix and Yuma planning areas, as defined in 40 CFR 81.303, which is incorporated by reference in R18-2-210, including tilling of land and application of fertilizers without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.

**Historical Note**

Section R18-2-609 renumbered from R18-2-409 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 6 A.A.R. 2009; effective May 12, 2000 (Supp. 00-2). Amended by final rulemaking at 11 A.A.R. 2210, effective July 18, 2005 (Supp. 05-2).

**R18-2-610. Definitions for R18-2-611**

The definitions in Article 1 of this Chapter and the following definitions apply to R18-2-611:

1. "Access restriction" means restricting or eliminating public access to noncropland with signs or physical obstruction.
2. "Aggregate cover" means gravel, concrete, recycled road base, caliche, or other similar material applied to noncropland.
3. "Artificial wind barrier" means a physical barrier to the wind.
4. "Best management practice" means a technique verified by scientific research, that on a case-by-case basis is practical, economically feasible, and effective in reducing PM<sub>10</sub> emissions from a regulated agricultural activity.
5. "Chemical irrigation" means applying a fertilizer, pesticide, or other agricultural chemical to cropland through an irrigation system.
6. "Combining tractor operations" means performing two or more tillage, cultivation, planting, or harvesting operations with a single tractor or harvester pass.
7. "Commercial farm" means 10 or more contiguous acres of land used for agricultural purposes within the boundary of the Maricopa PM<sub>10</sub> nonattainment area.
8. "Commercial farmer" means an individual, entity, or joint operation in general control of a commercial farm.
9. "Committee" means the Governor's Agricultural Best Management Practices Committee.
10. "Cover crop" means plants or a green manure crop grown for seasonal soil protection or soil improvement.
11. "Critical area planting" means using trees, shrubs, vines, grasses, or other vegetative cover on noncropland.
12. "Cropland" means land on a commercial farm that:
  - a. Is within the time-frame of final harvest to plant emergence;
  - b. Has been tilled in a prior year and is suitable for crop production, but is currently fallow; or
  - c. Is a turn-row.



**ARTICLE 8. EMISSIONS FROM MOBILE SOURCES (NEW AND EXISTING)****R18-2-801. Classification of Mobile Sources**

- A. This Article is applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations.
- B. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-801 renumbered to Section R18-2-901, new Section R18-2-801 renumbered from R18-2-601 effective November 15, 1993 (Supp. 93-4).

**R18-2-802. Off-road Machinery**

- A. No person shall cause, allow or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.
- B. Off-road machinery shall include trucks, graders, scrapers, rollers, locomotives and other construction and mining machinery not normally driven on a completed public roadway.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-802 renumbered to Section R18-2-902, new Section R18-2-802 renumbered from R18-2-602 effective November 15, 1993 (Supp. 93-4).

**R18-2-803. Heater-planer Units**

No person shall cause, allow or permit to be emitted into the atmosphere from any heater-planer operated for the purpose of reconstructing asphalt pavements smoke the opacity of which exceeds 20%. However three minutes' upset time in any one hour shall not constitute a violation of this Section.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-803 renumbered to Section R18-2-903, new Section R18-2-803 renumbered from R18-2-603 effective November 15, 1993 (Supp. 93-4).

**R18-2-804. Roadway and Site Cleaning Machinery**

- A. No person shall cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.
- B. In addition to complying with subsection (A), no person shall cause, allow or permit the cleaning of any site, roadway, or alley without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions may include applying dust suppressants. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-804 renumbered to Section R18-2-904, new Section R18-2-804 renumbered from R18-2-604 effective November 15, 1993 (Supp. 93-4).

**R18-2-805. Asphalt or Tar Kettles**

- A. No person shall cause, allow or permit to be emitted into the atmosphere from any asphalt or tar kettle smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%.
- B. In addition to complying with subsection (A), no person shall cause, allow or permit the operation of an asphalt or tar kettle without minimizing air contaminant emissions by utilizing all of the following control measures:
1. The control of temperature recommended by the asphalt or tar manufacturer;
  2. The operation of the kettle with lid closed except when charging;
  3. The pumping of asphalt from the kettle or the drawing of asphalt through cocks with no dipping;
  4. The dipping of tar in an approved manner;
  5. The maintaining of the kettle in clean, properly adjusted, and good operating condition;
  6. The firing of the kettle with liquid petroleum gas or other fuels acceptable to the Director.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-805 renumbered to Section R18-2-905, new Section R18-2-805 renumbered from R18-2-605 effective November 15, 1993 (Supp. 93-4).



**From:** Bret H. Parke [Parke.Bret@azdeq.gov]  
**Sent:** Tuesday, February 19, 2008 10:19 AM  
**To:** Williford, Vanessa (House); Bartz, Kate L.  
**Cc:** Ronald A. Kern; Wendy S. LeStarge  
**Subject:** RE: Davis-Monthan EA

Vanessa:

Here are some comments for the Draft EA for D-M AFB CIP.

Comments from our Tanks Program Division:

The Draft EA indicates that there are USTs to be addressed with the construction/demolition projects proposed. Currently, information indicates that 14 active USTs at 2 locations will be permanently closed. Additionally, 6 closed USTs (Closed in Place) at the 2 locations will also be removed during demolition.

At this time, TPD has no comments on the Davis-Monthan Draft Environmental Assessment for Capital Improvement Program (CIP) other than that the closure of USTs must be in accordance with Arizona law, including reporting any suspected or confirmed releases.

Comment from:  
Ronald Kern  
UST and Program Support Section Manager  
ADEQ  
Ph: (602) 771-4242

---

And, here's the response from Water Quality Division:

"The Draft EA appears to cover all concerns therefore the WQD has no comments. There are two minor clarifications.

1. As the EA acknowledges, Davis-Monthan AFB would be required to obtain coverage under the AZPDES Construction General Permit AZG2003-001. This Permit expires February 28, 2008. The WQD expects to issue a new Construction General Permit by February 29, 2008.
2. As the EA acknowledges, Davis-Monthan AFB is managed in accordance with the NPDES MSGP AZR05A12F, issued by EPA. The MSGP is expired, although coverage can continue under an administrative continuance. When EPA issues a new permit, ADEQ expects to adopt, with some Arizona-specific modifications, EPA's final version of the MSGP, and be the permitting authority."

Comment from:  
*Wendy LeStarge*  
*Environmental Rules Specialist*  
*Arizona Dept. of Environmental Quality*  
*Water Quality Division*  
*(602) 771-4836*

2/27/2008





**From:** Bret H. Parke [Parke.Bret@azdeq.gov]  
**Sent:** Wednesday, February 20, 2008 10:09 AM  
**To:** Williford, Vanessa (House); Bartz, Kate L.  
**Cc:** Michael A. Fulton  
**Subject:** FW: Davis Monthan Environmental Assessment  
**Attachments:** Final Environmental Assessment Comment.doc

Vanessa and Kate:

This concludes comments from ADEQ on this Draft EA for D-M AFB CIP. Thanks for your patience. Let me know if you have any questions.

Regards,

Bret Parke  
Deputy Administrative Counsel  
Arizona Department of Environmental Quality  
(602) 771-2242  
[bhp@azdeq.gov](mailto:bhp@azdeq.gov)

---

**From:** Michael A. Fulton  
**Sent:** Wednesday, February 20, 2008 9:37 AM  
**To:** Bret H. Parke  
**Cc:** Amanda E. Stone; Ren Willis-Frances; Harry Hendler; Susan H. Hess  
**Subject:** FW: Davis Monthan Environmental Assessment

Bret: the comments below along with Susan's (attached) constitute WPD's input regarding the DM EA.

The report should include:

1. Figure detailing areas to be demolished, constructed, etc.
2. Biological resources section to describe the biological survey conducted and the findings.
3. Cultural resources section to describe the request from DMAFB to the State Historical Preservation Office, and the SHPO confirmation (as required within 30 days of request) that no cultural resources exist.

Mike

---

NOTICE: This e-mail (and any attachments) may contain PRIVILEGED OR CONFIDENTIAL information and is intended only for the use of the specific individual(s) to whom it is addressed. It may contain information that is privileged and confidential under state and federal law. This information may be used or disclosed only in accordance with law, and you may be subject to penalties under law for improper use or further disclosure of the information in this e-mail and its attachments. If you have received this e-mail in error, please immediately notify the person named above by reply e-mail, and then delete the original e-mail. Thank you.

2/27/2008







RECEIVED

FEB 22 2008

ARIZONA STATE PARKS

February 21, 2008

James Garrison  
SHPO  
Arizona State Parks  
1300 W. Washington  
Phoenix, AZ 85007

Dear Mr. Garrison:

The 355<sup>th</sup> Wing of Davis-Monthan Air Force Base (AFB) has prepared a draft Environmental Assessment (EA) for the proposed construction and demolition projects associated with their five-year Capital Improvements Program (CIP). The draft EA is provided for your review and comment (Attachment 1). \*

The environmental analysis for the Proposed Action is being conducted by the U.S. Air Force in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969, and in compliance with Section 106 of the National Historic Preservation Act. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We would appreciate receiving any comments you may have as soon as possible, but by March 21, 2008, at the latest.

Any questions concerning the proposal should be directed to our consultant, Science Applications International Corporation (SAIC). The point of contact at SAIC is Ms. Kate L. Bartz. She can be reached at (520) 616-2506. Please forward your written comments to Ms. Bartz, in care of SAIC, 333 N. Wilmot, Suite 400, Tucson, Arizona, 85711, or fax to Ms. Bartz at (520) 616-2540, or email to Kate.L.Bartz@SAIC.com. Thank you for your assistance.

Sincerely,

Kate L. Bartz  
Project Manager, SAIC

\* We look forward to reviewing  
the agency's Section 106 consultation  
for these undertakings. Thank you.  
Ann E. Howard 3-13-08  
for S.H.P.O.

Attachment:

1. Draft EA/FONSI for Environmental Assessment for Capital Improvements Program (CIP)



**APPENDIX B  
AIR EMISSIONS CALCULATIONS FOR THE  
PROPOSED ACTION**



## Final Environmental Assessment

**Table 1. Air Emission Factors for Estimating Total Construction Emissions associated with the Davis-Monthan AFB CIP EA - Proposed Action**

Land Use	Unit of Measure	Pounds per Construction Period (1)					Reference
		ROC	CO	NOx	PM10	PM2.5	
Residential							
Single Family Housing	1,000 sf GFA (3)	23.66	75.62	347.74	24.69	24.69	(2)
Apartments	1,000 sf GFA (3)	21.97	70.22	322.90	22.93	22.93	(2)
Condominiums	1,000 sf GFA (3)	21.30	60.06	312.97	22.22	22.22	(2)
Mobile Homes	1,000 sf GFA (3)	21.30	68.06	312.97	22.22	22.22	(2)
Education							
Schools	1,000 sf GFA (3)	46.99	150.16	690.52	49.03	49.03	(2)
Commercial							
Business Park	1,000 sf GFA (3)	55.44	177.17	814.72	57.85	57.85	(2)
Day Care Center	1,000 sf GFA (3)	31.87	101.55	466.97	33.16	33.16	(2)
Discount Store	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Fast Food	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Government Office Complex	1,000 sf GFA (3)	55.44	177.17	814.72	57.85	57.85	(2)
Hardware Store	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Hotel	1,000 sf GFA (3)	41.58	132.87	611.04	43.39	43.39	(2)
Medical Office	1,000 sf GFA (3)	55.44	177.17	814.72	57.85	57.85	(2)
Motel	1,000 sf GFA (3)	41.58	132.87	611.04	43.39	43.39	(2)
Movie Theatre	1,000 sf GFA (3)	31.78	101.55	466.00	33.16	33.16	(2)
Office	1,000 sf GFA (3)	55.44	177.17	814.72	57.85	57.85	(2)
Resort Hotel	1,000 sf GFA (3)	41.58	132.87	611.04	43.39	43.39	(2)
Restaurant	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Shopping Center	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Supermarket	1,000 sf GFA (3)	31.78	101.55	466.97	33.16	33.16	(2)
Industrial	1,000 sf GFA (3)	32.79	104.79	481.88	104.79	104.79	(2)

Notes: (1) Construction emissions include on-site construction equipment and workers' travel.

(2) Source: South Coast Air Quality Management District. 1993. California Environmental Quality Air Quality Handbook.

(3) Gross Floor Area

**Table 2. Air Emission Factors for Estimating Total Construction Emissions associated with the Davis-Monthan AFB CIP EA - Proposed Action**

Land Use	Unit of Measure	Lbs/Day
	Measure	Lbs of PM10
<b>Unpaved Roads</b>		
Passenger Vehicles	Vehicle Miles Traveled	5.56
Trucks	Vehicle Miles Traveled	23
<b>Paved Roads</b>		
Passenger Vehicles	Vehicle Miles Traveled	0.33
Trucks	Vehicle Miles Traveled	2
<b>Demolition</b>	Cubic Foot	0.00042
<b>Grading</b>	Acres/Day	55
<b>Asbestos</b>	Cubic Foot	0.00006

## Final Environmental Assessment

Table 3. Total Emissions Associated with the Davis-Monthan AFB CIP EA - Proposed Action

Source	Emissions (Tons) (1)				
	ROC	CO	NOX	PM10	PM2.5 (2)
<b>Building Construction</b>					
CATM/Firearms Simulator	0.04	0.12	0.56	0.12	0.12
CSAR AGE Storage addition	0.04	0.14	0.65	0.14	0.14
ECG Pod Storage addition at Bldg 81	0.01	0.04	0.17	0.04	0.04
Munitions Igloo	0.04	0.13	0.61	0.13	0.13
Bldg 5247 Addition	0.06	0.18	0.81	0.06	0.06
C-130 JEIM Facility	0.02	0.05	0.24	0.05	0.05
A-10 JEIM Facility	0.04	0.13	0.60	0.13	0.13
Bldg 5600 Addition	0.06	0.18	0.81	0.06	0.06
JP-8 Refueling System	0.16	0.52	2.39	0.52	0.52
<b>Subtotal</b>	<b>0.47</b>	<b>1.49</b>	<b>6.87</b>	<b>1.25</b>	<b>1.25</b>
<b>Demolition</b>					
CSAR AGE Storage (Bldg 4721 and Bldg 48)	-	-	-	0.07	0.07
ECG Pod Storage addition (Bldg 81)	-	-	-	0.00	0.00
Parking Lot	-	-	-	0.23	0.23
C-130 and A-10 JEIM Facilities (Bldg 133)	-	-	-	0.05	0.05
Bldg 5600 Addition	-	-	-	0.03	0.03
JP-8 Refueling System	-	-	-	0.09	0.09
Bldg 4220 (Dorms)	-	-	-	0.15	0.15
Bldg 4320 (Dorms)	-	-	-	0.15	0.15
<b>Subtotal</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.77</b>	<b>0.77</b>
<b>Site Development / Grading / Paving</b>					
VFR Helipad	-	-	-	0.17	0.17
Munitions Igloo	-	-	-	0.00	0.00
Parking Lot	-	-	-	0.17	0.17
<b>Subtotal</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.34</b>	<b>0.34</b>
<b>TOTAL</b>	<b>0.47</b>	<b>1.49</b>	<b>6.87</b>	<b>2.37</b>	<b>2.37</b>
<b>De Minimis Thresholds For Conformity</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(1) Duration of construction estimated to be 1 year; Total Tons = Tons/Year

(2) It is assumed that all PM<sub>10</sub> emission are emitted as PM<sub>2.5</sub>, to be conservative.

## *FINAL ENVIRONMENTAL ASSESSMENT*

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RCRA	Resource Conservation and Recovery Act
SAP	satellite accumulation point
SCAQMD	South Coast Air Quality Management District
SF	square feet
SHPO	State Historic Preservation Office
SIC	Standard Industrial Code
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SPEAR	Special Emitter Array
SWDA	Solid Waste Disposal Act
SWPPP	Storm Water Pollution Prevention Plan
TEP	Tucson Electric Power
TPY	tons per year
U.S.	United States
UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USCB	United States Census Bureau
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
WSCA	Wildlife of Special Concern in Arizona